



ANNUAL REPORT 2007



**2007
Milwaukee
Common Council**

**President
Willie L. Hines, Jr.
District 15**

**Ashanti Hamilton
District 1**

**Joe Davis, Sr.
District 2**

**Michael S. D'Amato
District 3**

**Robert Bauman
District 4**

**James A. Bohl, Jr.
District 5**

**Mike McGee, Jr.
District 6**

**Willie C. Wade
District 7**

**Robert G. Donovan
District 8**

**Robert W. Puente
District 9**

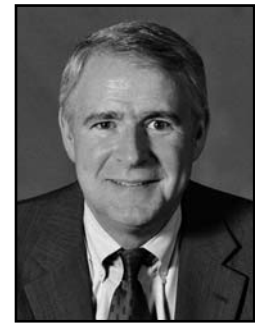
**Michael J. Murphy
District 10**

**Joseph A. Dudzik
District 11**

**James N. Witkowiak
District 12**

**Terry L. Witkowski
District 13**

**Tony Zielinski
District 14**



Mayor Tom Barrett

Table of Contents

Message from the Commissioner	1-2
Financial Report	3
Administration	5
Operations	13
– <i>Buildings and Fleet Services</i>	14
– <i>Environmental Services</i>	22
Infrastructure Services	27
Milwaukee Water Works	39
Statistics	Inside back Cover

Initiatives for 2007

- Install 103 new LUKE multi-space meters in the central business district to enhance payment options for on street parking.
- Take steps to ensure critical drinking water infrastructure that will function during power outages. Based on an electrical reliability study and through its capital improvements budget, the Milwaukee Water Works will begin implementation of backup power solutions at selected facilities.
- Eliminate the waste of millions of gallons of water and improve public safety through a campaign to reduce illegal hydrant openings. Public education, installation of hydrant locks and collaboration between the Milwaukee Water Works, Fire, Police and Milwaukee Public Schools will reduce the amount of hydrant openings from 776 in 2006.
- Will continue to expand the City's commitment to the bike population by adding bike lanes on street right-of-way and incorporating some off-road routes, installing additional bike racks and distributing the City's bike route map.
- Develop the Milwaukee Neighborhood Traffic Management program, which will result in the installation of several traffic-calming features such as speed humps throughout the City.
- Continue to implement Light Emitting Diodes (LED) traffic signal program, which will continue to provide upgrades to improve signal visibility, reduce accidents and decrease electrical energy consumption.
- Will begin work on replacing the City's Master Street Lighting Control System, which will not only provide more reliable activation of street lights, but will also provide system performance monitoring capabilities and assist in more efficient repair and maintenance of street lighting facilities.
- Continue to expand on Mayor's sustainability programs by constructing more green roofs on City buildings, installing a photovoltaic power system and geothermal system on the Recycling Education Center, continuing to reduce vehicle emissions and pollution in the City's fleet and purchasing several hybrid vehicles.
- Continue to develop a plan to protect the City's 120-mile boulevard system. The plan will restructure the boulevard system by increasing tree canopy, adding large landscaped "signature" beds at strategic locations throughout the City, replacing low-impact flower beds with trees and turf and converting to an automated irrigation system.

Mission: City of Milwaukee Department of Public Works

To promote the health, safety, mobility and quality of life for all City of Milwaukee residents and visitors by providing:

- Safe, attractive and efficient surface infrastructure systems
- Solid waste collection, disposal, recycling and waste reduction
- Safe, aesthetically pleasing and sufficient drinking water
- Storm water and waste water conveyance
- Support services and facilities for the Department of Public Works and other City departments.



Jeffrey J. Mantes

The Department of Public Works once again continued to make strides in every division in 2007. The focus was on innovative changes and sustainability, which had a positive impact on the environment and money-saving efficiencies for residents and businesses.

During summer 2007, the **Administrative Services Division** installed 103 new LUKE multi-space meters in the central business district to enhance payment options for on-street parking. Requested by the business community and the parking public to make paying for parking easier, the City invested \$1.3 million for the first phase of a three-phase project to replace the single-spaced meters in the downtown area. The meters are financed by the Parking Fund.

Buildings and Fleet installed the third green roof on a City-owned property in the heart of downtown. When it was time to replace the 17,700 square foot roof at 809 North Broadway, the decision was made to install a green roof as part of Mayor Tom Barrett's sustainability program. A green roof provides several benefits. It reduces heating and cooling costs, reduces storm water runoff, provides noise reduction, improves air quality, and is aesthetically pleasing. A green roof has a longer life span, more than 45 years.

At the Recycling Education Center, 1313 West Mt. Vernon, two green/sustainable high-performance projects were installed by **Buildings and Fleet**. The projects consist of a Photovoltaic Power System and a Geothermal System (ground source heat pump.) A ground source heat pump (GSHP) extracts solar heat stored in the upper layers of the earth and the heat is then delivered to a building. Conversely, in the summer season, the heat pump rejects heat removed from the building into the ground rather than the atmosphere or a body of water. GSHPs can reduce the energy required for space heating in buildings by as much as 50 percent. Both projects will produce savings on energy costs.

Fleet Services (Buildings and Fleet) operates one of the largest public fleets in the state and continually

strives to reduce vehicle emissions and pollution and recycle and/or reuse materials whenever opportunities arise. Among the initiatives undertaken by, Fleet Services:

- Installed diesel oxidation catalyst (DOC) mufflers on 50 refuse packers through a grant from the EPA. The use of DOC mufflers reduces particulate matter and hydrocarbons emitted.
- Increased use of biodiesel from 2 percent in 2006 to 10 percent in 2007, displacing over 50,000 gallons of petroleum diesel fuel with cleaner-burning biodiesel fuel.
- Purchased several hybrid vehicles improving fuel economy drastically over previously used vehicles.
- Reused motor oil to provide heat for the service bays at the Field Headquarters and the offices at the Central Garage.

Environmental Services Division assumed responsibility for the abatement of City-owned vacant lots in 2007. The division performed nuisance cleanups on 1,000 City-owned vacant lots, averaging a three-day response time following notification from the Department of Neighborhood Services.

Environmental Services' Recycling Program had repeat success and started an innovative recycling initiative. For the fourth consecutive year, the City of Milwaukee participated and won first place for the most aluminum cans collected in a national recycling contest. To highlight the value of recycling the *Cans for Cash Recycling Challenge* is sponsored by the US Conference of Mayors and Novelis Corporation, the world's largest aluminum can recycler. In 2007, the City collected 1,385,328 pounds of aluminum cans or 47,101,142 individual cans over the one-month collection period from October 1-30, 2007. If stood end to end, the cans would form a line over 1,872 miles long, stretching from City Hall to the Grand Canyon in Arizona. The City received the top prize of \$5,000.

The division received a \$43,500 grant from the U.S. Environmental Protection Agency to test the effective-

ness of personal contact in delivering recycling education that changes behavior by increasing recycling participation. The study uses the premise of social marketing suggesting that message source and personal contact impact how a message is received and the results the message generates. The study will continue in 2008.

On the Forestry side of **Environmental Services**, the staff completed the fourth year of a multi-year comprehensive inventory to document and classify the City's street tree population. In 2007, 37,500 trees were inventoried bringing the total inventory to approximately 120,000 trees, 60 percent of the population. A complete citywide street tree inventory will serve as a valuable management tool to direct operations and a database will quantify the benefits of the City's urban canopy.

Environmental Services partnered with the State of Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) to continue the Emerald Ash Borer (EAB) survey. The City provided 15 ash trees that were girdled or placed under stress to increase vulnerability to the disease. No signs of EAB infestation were found. Environmental Services, along with state partners, DATCP and the Department of Natural Resources, will continue to monitor for the presence of EAB in Milwaukee.

The Professional Grounds Management Society (PGMS) presented **Environmental Services** with an honor award in recognition of the care and management of the City's 120-mile boulevard system. The PGMS recognizes outstanding professional accomplishment and excellence in grounds management and promotes well-managed landscapes throughout the country. In particular, the PGMS notes the challenges faced in professional grounds management. Operating in the public right-of-way, Environmental Services faces many challenges, including landscaping around light poles and power lines, ensuring traffic safety with proper sight lines and set-backs, safeguarding workers among on-coming traffic and repairing damage from de-icing agents, among others.

Infrastructure Services completed construction on the Miller Park Reversible Lanes/Variable Message Project. This project provides the necessary traffic control equipment, including overhead sign structures, static signage, pavement markings, Intelligent Transportation equipment and a variable message sign to allow efficient parking lot operations and two-way traffic operation on West Canal Street during stadium events.

Other **Infrastructure Services** projects include:

- Significant gains for bicycle initiatives: over 20,000 bike route maps distributed; 700 more bike racks installed; and two more bike paths completed
- Continued development of the Summerfest Shuttle Bus Advance Parking Guidance System. This system provides information to drivers headed to

Summerfest, including the availability in parking garages located near the downtown shuttle route. In 2007, the second phase of this project was approved to expand the Advanced Parking System in downtown to parking garages that serve the Bradley Center and Midwest Airlines Convention Center.

Work continued on the replacement of the City's Master Lighting Control System by **Infrastructure Services** Electrical Services Section. An operational prototype was developed and put into service. The old system was developed using World War II era technology. The new system will not only provide more reliable activation of street lights, but will also provide monitoring capabilities of system performance and assist in more efficient repair and maintenance.

The **Milwaukee Water Works** reduced the tax rate in the City of Milwaukee. In 2007, the utility made a \$7.8 million payment in lieu of taxes to offset the City tax levy, reducing the tax rate by \$0.26 per thousand dollars of assessed valuation. The utility pays other City departments for services it uses and for the payment of employee benefits.

Upgrades to the Milwaukee Water Works Customer Information System provided enhanced flexibility and accounting integrity for fees billed on behalf of the City on the Municipal Services Bill. In 2007, the **Milwaukee Water Works** began an online payment option using MasterCard and eCheck at its Web site, www.water.mpw.net. Customers gained the option of contacting the Milwaukee Water Works through an email address, watwebcs@milwaukee.gov, and may view account balances, make address changes and monitor water use using the Web site.

The **Milwaukee Water Works** also received a 2007 Utility Special Achievement Award from the American Water Works Association Wisconsin section for its campaign, "Only Tap Water Delivers." Launched during the utility's 135th anniversary, the campaign promoted public awareness of the value of a safe, reliable drinking water supply and encouraged community stewardship for maintaining water infrastructure for future generations.

My message provides only a snapshot of all of the numerous achievements, innovative programs and technology upgrades the staff of the Department of Public Works has engaged in during 2007. We have a department that we can be proud of and a public that depends on us to be there 24 hours a day, 7 days a week. Thanks to the staff for your continued hard work and dedication.



Jeffrey J. Mantes, *Commissioner*
City of Milwaukee, Department of Public Works

2007 Department of Public Works Budget Summary

	2005 Actual Expenditures	2006 Adopted Budget	2007 Adopted Budget	Change 2007 Adopted vs. 2006 Adopted
Personnel*				
FTEs – Operations & Maintenance	1729.16	1688.87	1653.99	-34.88
FTEs – Other	429.62	439.43	447	7.57
Total Positions Authorized	3145	3105	3068	-37
 Expenditures – General City Purposes				
Administrative Services	\$4,712,829	\$4,811,231	\$4,827,996	\$16,765
Infrastructure	24,630,807	23,131,188	23,848,511	717,323
Operations	82,735,016	79,782,017	80,765,615	983,598
Subtotal – General City Purposes	\$112,078,652	\$107,724,436	\$109,442,122	\$1,717,686
 Water Works				
Operating Budget	\$61,274,238	\$67,730,974	\$67,728,842	-\$2,132
Capital Budget	15,212,549	20,120,000	25,140,500	5,020,500
Total Water Works**	\$76,486,787	\$87,850,974	\$92,869,342	\$5,018,368
 Parking Budget				
Operating And Maintenance Budget	\$25,363,993	\$26,991,593	\$26,059,606	-\$931,987
Capital Budget	889,335	2,080,000	595,000	-1,485,000
Addition to Parking Reserves	0	0	0	0
Transfer to General Fund	15,210,000	15,200,000	15,800,000	600,000
Capital Improvements to be Financed from Permanent Improvement				0
Reserve Fund - Parking	0	5,000,000	5,000,000	0
Total Parking Budget	\$41,463,328	\$49,271,593	\$47,454,606	-\$1,816,987
 Sewer Maintenance Fund				
Operating and Maintenance Budget	\$31,798,526	\$35,420,730	\$39,387,171	\$3,966,441
Capital Improvements	19,840,982	23,500,000	24,500,000	1,000,000
Total Sewer Fund Budget	\$51,639,508	\$58,920,730	\$63,887,171	\$4,966,441
 Grand Total – Department of Public Works	\$281,668,275	\$303,767,733	\$313,653,241	\$9,885,508
*Personnel totals reflect Operating Divisions, Water Works, Parking Fund and Sewer Maintenance Fund				
**Does not include retained earnings				

The City of Milwaukee Unveils LUKE — Parking Meter Will Accept Credit Cards and Coins

On Tuesday, June 5, 2007 Mayor Tom Barrett, Alderman Robert Bauman, executive directors of several of Milwaukee downtown organizations, and those who made it possible, welcomed and celebrated the LUKE, the new multi-spaced parking meter. The press conference was held outside the Milwaukee Public Market. A long anticipated project by both downtown businesses and downtown parkers, the City installed 103 LUKE parking meters accommodating nearly 1,200 parking spaces through out the downtown area. Phase One of a three-phase project costs \$1.3 million and is funded through the Parking Fund.

After a competitive Request for Proposal process, the City if Milwaukee chose LUKE, manufactured by Digital Payment Technologies (DPT), British Columbia, Canada. DPT partnered with Automated Parking Technologies, the prime contractor on the project. In areas where LUKE is installed, the existing electronic single-spaced meter heads will be removed and replaced with a space marker to number the parking space. The space marker is design to complement the downtown pedestrian way finding system. The LUKE accepts Visa and MasterCard cred-

it/debit cards and coins. It also provides a receipt that includes the time when the meter expires and the space number. Payment for a parking space can be made at any LUKE meter as long as the space number is entered. All transactions are in real time with real time reporting on usage, revenue and meter status. The meter management system is fully automated and will enhance adjudication, financial auditing and meter maintenance capabilities.

Assisting with the installation of the new LUKE multi-space parking meters, were crews from Infrastructure's Electrical Services section, who laid electrical wiring and Sidewalk Maintenance crews, who prepared the sidewalk for actual installation of the LUKES.



Mayor Tom Barrett and Alderman Robert Bauman. The LUKE multi-space meters are located in in the central business district and the Historic Third Ward, which Alderman Bauman represents.



(Left to right) The selection committee that read and evaluated all of the Requests for Proposals were: Network Planning Manager, Gerry Froh, DPW Technology Support Services; Parking Finance Manager, Cindy Angelos; Administrative Services Director Dorinda Floyd; Executive Director of Milwaukee Downtown, Beth Nichols and former Department of Public Works Commissioner Mariano Schifalacqua.



Administrative Services Director Dorinda Floyd, Parking Operation Coordinator Paul Klajbor and Parking Finance Manager Cindy Angelos celebrate the installation of the LUKE with a LUKE-shaped cake.



Zeidler Municipal Building
841 North Broadway, Room 516 (414) 286-3300
TDD (414) 286-2025

Dorinda R. Floyd, *Administrative Services Director*

Administrative Services Managers:

LaQuisha Schroeder, *Finance & Planning*
Gerard Froh, *Network Planning*
Thomas Sanders, *Parking Enforcement Manager*
Cindy Angelos, *Parking Financial Manager*

Office of the Commissioner:

James P. Purko, *Director of Operations*
Ghassan Korban, *Coordination Manager*
Dan Thomas, *Personnel Administrator*
Cecilia Gilbert, *Permits & Communications Manager*

The Administration Services Division serves as department liaison to elected officials and the public, and coordinates major transportation, environmental and economic development-related projects. In addition, this division is responsible for coordinating the department's operating and capital budgets, as well as enterprise fund budgets, finance and planning, payroll, personnel, employee safety and contract management. The division also manages all communications responsibilities, including media relations for the department; special event permits; DPW Call Center, 286-CITY; and all City data and voice telecommunications infrastructure.

The division manages all parking-related activities, including parking enforcement, parking information desk, City tow lot, towing contracts, citation processing/collection contract, parking structures and lots, parking permits and parking meters.

Finance and Planning

The Administrative Services Division is responsible for coordinating the operating and capital budgets for the department, as well as several enterprise funds, including Milwaukee Water Works, Sewer Maintenance Fund and Parking Fund. The division is also responsible for tracking and monitoring revenues and expenditures on a monthly basis.

In the 2007 budget, the department's operating budget (excluding enterprise funds) totaled \$109.4 million and the capital budget totaled \$54 million. Revenues projected at \$45.6 million, totaled \$48.6 million.

During 2007, the Department of Public Works (DPW) faced significant budget challenges due to snow and ice operations, high fuel costs, street repairs and street light outages. The 2007 budget included \$4.9 million for snow and ice control. However, faced with 77.8 inches of snow, 2007 snow and ice expenditures

totaled \$10.8 million. Consequently, the City was forced to use short-term borrowing in order to pay for the shortfall. In addition, the department required approximately \$800,000 in funding from the City's Contingent Fund to pay for shortfalls in street maintenance and street lighting repairs. Due to the aging infrastructure and winter freeze-thaw cycles, emergency repairs have significantly increased in the past several years.

The Finance and Planning section is also responsible for paying invoices, billing City and external agencies for services performed by the department and inventory control. In 2007, this section processed 32,409 vouchers, totaling \$132 million, and produced 3,347 invoices and interdepartmental requisitions, totaling \$46.9 million. DPW ended 2007 with an inventory value of \$7.3 million, approximately \$600,000 less than year-end 2006.

DPW Call Center

The Department of Public Works Call Center began operations in November 1998. It is a "one-stop-shop" for citizens requesting services or seeking information either over the telephone or through the Internet. By calling a central number, citizens may talk to customer service representatives who process requests for services, provide information and respond to citizen complaints related to sanitation, forestry, street maintenance, street lighting, sewer maintenance, street signs and traffic signals.

DPW service requests are entered electronically using an application developed by staff. The application contains all relevant information required to deliver the requested service. Once received, the service request is sent electronically to the field district offices to expedite processing. For all service requests, the Call Center application is used to track the number, type of request and its disposition; monitor response times; and schedule and route staff to deliver services in the most cost-efficient and effective manner. This data is also an important tool

for department managers and City policymakers in evaluating workload and effectiveness.

In 2007, the Call Center received 157,398 calls and requests for services, very similar to 2006. In addition, the Call Center also processes service requests online at www.dpwworks.mpw.net. Nearly 10,700 online requests were received in 2007, an increase of 22 percent from 2006. Of the total calls received, nearly 121,000, or 77 percent, were service requests. This is nearly identical to 2006. Of the service requests, 70 percent were for sanitation-related services.

286-CITY

In June 2006, the City implemented 286-CITY, a single access telephone number for all City services and information. The purpose of 286-CITY is to streamline public access to City government. The most commonly called telephone numbers and requested services are available through 286-CITY and its menu or submenus, including police and fire non-emergency calls. However, residents must still dial 911 for all emergency calls. The system is in both English and Spanish. Customer service representatives are available during normal business hours to process requests for services and information.

In 2007, 286-CITY recorded 87,860 incoming calls, of which 95 percent selected the English option, 2 percent selected the Spanish option and 3 percent made no selection and defaulted to the DPW Call Center. Of the callers that made a selection, 41 percent selected DPW, 7 percent police and fire non-emergency, 3 percent Department of City Development, 3 percent Department of Neighborhood Services, 1 percent Library, 2 percent Mayor's Office and City Clerk, and 1 percent Health Department. In addition, 29 percent selected the opt-out option (by pressing "0"), which defaults to the DPW Call Center. Approximately 9 percent of the callers disconnected during the process. For seasonal requests for services and information such as elections, property assessments, property tax payments or even health emergencies, 1 percent selected this option.

PERSONNEL

Contracts negotiations for 2006-2008 have been on-going. Significant changes in the area of health insurance are being discussed with all unions.

The Snow Season of 2007-2008 was one of record-setting snow fall. The number of operations presented a challenge to all snow-related staff. The division is looking at various means to improve staff response. GPS systems in vehicles and staff "call out" software are two of the ways the division believes snow and ice operation efficiency may be improved.

SAFETY

The Safety section staff has been actively involved in the Well City Initiative. Various training sessions were conducted for Department of Public Works field staff in 2007. The department believes that safety training and training regarding wellness will result in fewer injuries and a healthier work force.

2007 SPECIAL EVENT REPORT

The Department of Public Works' Special Events Office processed 1,137 permits in 2007, 73 more than 2006. Twenty-three permits were issued for marches in 2007 compared to fourteen permits issued in 2006. Several organizations requested permits to call attention to political ideology and social injustices. Fifty-five permits were issued for banners on street poles. This is an increase from 32 in 2006. More organizations are using the banners to promote their business districts, to celebrate important anniversaries and to encourage people to give, whether it's to the United Way or the Blood Center of Wisconsin. Summerfest celebrated its 40th anniversary with double banners on the harp lights that lined Wisconsin Avenue from Cass Street to Water Street.

The 4th aldermanic district hosted the most events and was issued 377 permits. The 4th district includes downtown, the Historic Third Ward and the near west side. The 3rd aldermanic district was second with 124 permits issued for the areas around Brady Street, North Avenue and the University of Wisconsin-Milwaukee.

The Special Events Office saw an increase in "parking events." These are events require parking in conjunction with an event that may not be in the public right-of-way. Requests come from a variety of businesses. Some examples are the Midwest Airlines Center requesting parking for experimental cars outside and adjacent to the Center during the Midwest Automobile Dealers Gala, and parking for a photo shoot for Boston Store or the Harley-Davidson motorcycle catalog. Many of the theater venues may request additional parking for the buses that carry performers and band members. The artists' \$4-\$5 million "motorized homes" are parked close to the venues where the performances are occurring.

The office also assisted with the 2007 National Veterans Wheelchair Games by providing bus shuttle stops around downtown Milwaukee, shutting down Wells Street for a block party, coordinating special parking for the opening game ceremony and many other needs. Officials who helped coordinate the activities said Milwaukee was the best host city they had in recent history.

The 40th anniversary of the Milwaukee Civil Rights movement was celebrated by shutting down a portion of the James Groppi Unity Bridge, formerly the 16th

Street Viaduct, on September 30, 2007. In 1967, Father Groppi led several thousand Milwaukeeans across the bridge to protest housing segregation. Several local politicians and former civil rights activists were on hand to mark the anniversary.

TECHNOLOGICAL SUPPORT SERVICES

The Technology Support Services (TSS) section has responsibilities in three areas of technology for the Department of Public Works and the City: server/desktop computing, application development and citywide telecommunications infrastructure.

Server/Desktop Computing This team performs administration, support and maintenance for Public Works Active Directory using Microsoft Windows Server 2003. In addition, this team performs software and hardware installation, support and maintenance for user and desktop clients. In 2007, the technology support section began moving users off the Novell environment. The Administration, Parking Enforcement and Operations Divisions were successfully moved to a Microsoft Server environment.

This team is also responsible for the deployment of group policies and software updates to all desktops and servers in order to help maintain a secure computing environment. Support is provided for applications including the department-wide calendar and email systems, new client server applications for 286-CITY, work management systems, public works permits, DPW invoice/accounts receivable system, Microstation, PeopleSoft and parking enforcement applications.

Application Development The application development team works directly with DPW operational managers to custom build functionality into applications to maximize the efficiency and effectiveness of DPW operations. With the exception of the database itself, all the software used to develop and support DPW's 52 production applications is "open source" or free. In addition to these 52 user applications, there are dozens of utility programs that import data, convert data, monitor server utilization and perform other functions that improve the efficiency and productivity of the application development team. The application servers are low-cost and powerful Intel computers that run the Linux operating system, also open source. In addition to small code revisions and supporting all the users of the 52 applications, the application development team has developed many new reports, dozens of database field additions, SQL streamlining, modular code libraries and other algorithm enhancements to provide improvements to the end user experience. The framework of classes that allow for greater productivity by the

application development team has been greatly expanded. New print preview objects, graphics manipulation, better table models and more have been implemented. All programs using this framework are automatically affected, resulting in a more intuitive user interface across many applications at once. All DPW appservers are now running with our GenericServer as the base. User disruption is at an all-time low because servers never need to be stopped and re-started whenever a new function or report is added.

Operational since 1999, the most widely used DPW web application, CityTime, flawlessly transferred over 2.3 million time card entries in 2007 to the City's PeopleSoft payroll system. An absence database has also been added in 2007 for better tracking of employee absences.

In 2007, the technology section developed several new applications. Significant effort was expended into completing the Infrastructure Information Management Systems. Final pieces of this project completed, tested and debugged include estimates, construction, and sidewalk contracts. Contract payments will be finalized in 2008. Construction projects are now available on MapMilwaukee. Snow removal was added to the Special Assessment Program and integrated into the Web site www.mpw.net/servlets/assmts1.

A map/GPS/wireless program was implemented and used by parking checkers to enforce the LUKE multi-space parking meters, so they can see what spaces are expired without leaving their vehicles. The program utilizes PDAs installed in the vehicles. The pilot program has been successful and additional PDAs will be installed in several more vehicles in 2008. In 2007, the central processing server for the LUKE parking meters was moved from the vendor's headquarters to DPW's central server room where it can be locally maintained and operated for greater control and operational efficiency. By owning and maintaining the server, the City saves significant costs in hosting fees.

Telecommunication Services (DPW-TSS) The DPW-TSS provides installation, maintenance and support for a wide variety of telecommunication equipment. Most importantly, DPW-TSS supports the network infrastructure for the Police, Fire and Water departments. DPW-TSS provides on-site response for problems that impact health and safety 24 hours a day, 365 days a year. While information technology focuses primarily on applications and the associated hardware, telecommunication services and the deployment of the City's network equipment, fiber and copper infrastructure involves a great deal more. Beside "data" communication services, DPW also supports telecommunication services for municipal security systems, the City and Police Department telephone internode's links, radio backbone,

low-speed data communications services such as the fuel system and the Water and Sewer System Control and Data Analysis Systems.

In 2007, DPW-TSS assumed responsibility for all network equipment previously maintained by ITMD and is now responsible for its support as part of an agreement with the Information Technology Management Department (ITMD). The agreement transfers all responsibility for the design, acquisition, installation, maintenance, documentation, management and support of network equipment and services to DPW.

DPW-TSS supported the facility abandonment relocations of Johnson Health Center and Coggs Health Center. Phone equipment recovered from these locations was redeployed to support two Department of City Development and Housing Authority of the City of Milwaukee facilities. Additional call recording hardware was installed at the DPW Field Headquarters to support recording of several Fire and Water department analog radio lines.

Various construction projects by other governmental entities continue to challenge DPW's ability to maintain telecommunication services. In 2007, fiber and network equipment serving the Department of Transportation Traffic Operation Center was redeployed to support their relocation to new offices at the Amtrak terminal. In 2007 the Community Service Wide Area Network (CSWAN) optical platform was upgraded to support Milwaukee Police Department video cameras. Several cameras were added to the network and continued support is provided as cameras are added.

Parking Fund

The Parking Fund is an enterprise fund administered by the Department of Public Works. It receives revenues from various parking activities, including parking enforcement, which finances the City's on- and off-street parking operations.

The fund's activities include operating four City-owned parking structures that provide 4,454 parking spaces. The City leases a fifth structure to a private company. In addition, DPW manages approximately 50 City-owned surface parking lots. Revenue received in 2007 from parking structures and lots totaled over \$7 million, an increase of nearly \$250,000, most of which is attributable to the 1000 North Water Street parking structure.

A staff of four manages 6,250 parking meters citywide — 5,931 on-street and 319 off-street meters. In 2007, nearly \$3.9 million was generated in meter revenue, a decrease of \$130,000 from 2006. This is due to the multi-space parking meter project whereby over 1,100 single-spaced parking meters were removed and 103 LUKE multi-space parking meters were installed.

Parking meter staff is also responsible for hooding, installing and removing meters as needed. This activity generated nearly \$205,000 in 2007, an increase of nearly \$60,000 from 2006.

DPW also administers the overnight parking permit program. Permits are sold at all Police District Stations, three Violations Bureau locations and the City Tow Lot. In 2007, over \$2.9 million was generated from the sale of quarterly and annual night parking permits, an increase of \$153,000 from 2006.

The City's towing program is also managed through the Parking Fund. DPW is responsible for managing the City's Tow Lot, two towing contracts and the vehicle recycling contract. In 2007, 36,274 vehicles were towed, the greatest number ever. Of this, 3.9 percent of the vehicles were abandoned and 96.1 percent were illegally parked. Of the vehicles towed, 76 percent were claimed by their owners, while 24 percent remained unclaimed. The percentage of owners retrieving their vehicles has significantly increased from 65 percent in 2006 to 76 percent in 2007. Of the vehicles disposed, the City recycled 18 percent and sold 6 percent. Revenue generated from towing, storage and disposal of vehicles totaled over \$6.25 million in 2007, an increase of \$425,000 from 2006. This reflects higher prices for scrap metal, higher retrieval rates of vehicles and billing individuals who failed to retrieve their vehicles for towing and storage fees.

Parking Enforcement Operations, along with the Parking Information Desk, are housed at 123 North 25th Street in the Menomonee Valley. Parking enforcement operations include 64 parking checkers. The goal of parking enforcement is to deploy parking checkers to provide the most comprehensive and consistent parking enforcement citywide. In addition, parking checkers are deployed 24 hours a day, 7 days a week, 365 days a year and are assigned to special patrols, including abandoned vehicles, citizen complaints and Aldermanic Service Requests. In 2007, parking checkers issued over 825,000 parking citations, a decrease of 2.3 percent from 2006. Police-issued parking citations continued to decline in 2007 by over 7.3 percent. The Police have reallocated their resources to concentrate more on crime-fighting activities. In addition, in 2007 the average response time to a parking complaint was 1.25 hours, slightly longer than the goal of 1 hour.

The Parking Information Desk operates 24 hours a day, 7 days a week, 365 days a year and includes 21 communication assistants. Parking Information Desk personnel receive parking complaints, process night parking permissions, provide general parking information and dispatch tow operators. In 2007, the Parking Information Desk received 242,454 calls, an increase of 15 percent from 2006. Of the calls, 40,609 calls were parking complaints from citizens, nearly identical to 2006,

and 201,846 calls were for night parking permissions, an increase of 18.5 percent. In addition, DPW developed an online night parking permissions request form to make night parking permissions even more convenient for the public. This form may be accessed at www.parking.mpw.net. In 2007, 68,968 permissions were requested online, an increase of 52.6 percent over 2006. Further, Parking Information Desk personnel also dispatched 49,451 tows in 2007, an increase of 19.6 percent.

Parking Citation Processing

The Department of Public Works manages the processing and collection of parking citations with the help of contracted services. There are several ways citizens can pay parking citations. They may use the pay-by-mail service (31.6 percent), visit the three Violations Bureau locations or utilize drop boxes located in the Police District Stations and City Hall (24.4 percent). In 2002, the City offered two more convenient ways to pay parking citations, which are available to the public around the clock. Citizens can pay by phone through the Interactive Voice Response (IVR) system by calling the Violations Bureau at 344-0840 at any time (4.8 percent). In addition, citizens may pay parking citations online by accessing www.parking.mpw.net (20.5 percent). Since 2005, citizens may also pay their parking citations at Automated Payment Centers in the police district stations (4.5 percent). Finally, in 2006, the Tow Lot staff was given the capability to receive parking citation payments as well (1.4 percent).

Since 2002, the City has participated in the State Department of Revenue's Tax Refund Intercept Program, whereby state income refunds are intercepted to pay for outstanding parking citations. Unpaid parking citation balances exceeding \$45 are registered with the Department of Revenue. In 2007, 12.8 percent of all citations payments were collected through this program, totaling nearly \$1.9 million.

The automated citation processing/cash management system tracks citation issuance and payments and has improved the City's ability to pursue overdue and delinquent citations and to better manage City parking resources. From 2003 through 2007, nearly 575,000 citations have been certified with the Department of Revenue, totaling over \$26.8 million of which nearly 174,000 citations have been paid, totaling over \$8.6 million. This represents a collection rate of 32 percent. Under the tax intercept program, the debt remains certified until fully paid. Consequently, \$18.2 million in outstanding debt still remains certified, and will likely be collected over the years to come.

The Violations Bureau processed over 900,000 parking citations in 2007, with revenue collected totaling

\$19.3 million. Of that amount, over \$6.1 million, or 32 percent, was collected from past due violations, including the funds collected from the Tax Refund Intercept Program. It appears that the clearance rate of citations issued in 2007 is expected to resemble the clearance rates of prior years at nearly 80 percent.

The citation processing/collection contract expires on May 4, 2008. In November 2007, DPW hired a consultant to assist in the development of a Request for Proposal (RFP) for these services. It is the department's intent to issue the RFP in spring 2008 and select a vendor in the summer. The new contract is expected to begin in January 2009.

Parking Citation Adjudication

In 2003, the Department of Public Works, City Attorney's Office and the Municipal Court worked cooperatively to develop and implement a number of strategies to deal with the large number of parking scofflaws. These strategies include the Municipal Court obtaining jurisdiction for adjudication and enhanced collection efforts of outstanding parking citations. One of these strategies includes utilizing the Notice of Appearance form to address parking scofflaws who miss a scheduled appointment with the Citation Review Manager. Over 50 percent of parking scofflaws who schedule an appointment miss the first appointment. To reschedule an appointment, the scofflaw must go to the Violations Bureau or the Tow Lot to sign a Notice of Appearance form. This form includes a Municipal Court date and a summary of all outstanding parking citations. Failure to appear in Court results in a default judgment and may include a suspension of vehicle registration or a lien on assets.

Another strategy implemented in late 2003 included the utilization of the summons and complaint form. The purpose of this form is to address parking scofflaws whose vehicles have been towed by the City and retrieved by the owners. When the scofflaw retrieves his/her vehicle at the Tow Lot and there are eligible outstanding parking citations, a summons and complaint will be personally served to the parking scofflaw. This form will include a Municipal Court date and a summary of all outstanding parking citations. Failure to appear in Court will result in a default judgment and may include a suspension of vehicle registration or a lien on assets. In 2007, 3,926 summons were issued for 34,835 citations valued at nearly \$1.5 million. This is a significant increase over 2006, which reflects the adoption of a new City ordinance that authorizes the City to ticket and tow any vehicle parked on the street that does not display valid registration. In most cases, the vehicle owner cannot obtain registration because of unpaid parking citations.

In 2005, the Municipal Court judges issued an order requiring the City Attorney to prevent the filing of any actions in the Municipal Court containing parking citations that were more than two years old unless the citations had been submitted to the State's Department of Transportation (DOT) for registration holds. Placing a vehicle registration hold on any outstanding parking citation extends the statute of limitations to adjudicate a citation from two years to six years. Because it is cost prohibitive for the City to place a registration hold on every outstanding citation (the City requests over 100,000 holds annually at a cost of \$5 per hold), the City places a hold on the oldest citation. However, in 2007 the City was successful in obtaining an agreement from DOT to allow the City to bundle all overdue citations under one registration hold at a cost of \$2.50 per hold. As a result, all outstanding parking citations will have to be paid before a vehicle registration hold is released.

Parking Technology

In 2004, the Department of Public Works negotiated an amendment to the parking citation processing contract to require the development and installation of automated payment centers that sell and dispense quarterly and annual night parking permits and accept payments for parking citations. Automated Payment Centers have now been installed in Police District Stations 2, 3, 4, 5, 6 and 7. The Automated Payment Centers accept cash, check or credit/debit cards and electronically dispense the permits. The information is in both English and Spanish and the machines are accessible 24 hours a day, 7 days a week. Because the purchaser of a permit is required to enter all the permit data or update the data when necessary, the night parking permit data is more timely and the City no longer requires its contractor to hand-enter this data after a permit is sold. In addition, the Automated Payment Centers have significantly reduced the workload for the Milwaukee Police Department staff who previously sold night parking permits. In 2007, nearly 117,000 permits were sold through the Automated Payment Centers, totaling nearly \$1.9 million. Parking citations can also be paid at the machines and are processed in real time. In 2007, 34,600 parking citations were paid, totaling over \$853,000.

In late 2004, automated revenue control equipment was installed in four City-owned parking structures. The purpose of this investment in technology was to enhance financial management and auditing capabilities and provide payment options for the public. The equipment has the ability to provide for credit card payment on entrance, exit and at pay-on-foot machines. Over time, it is anticipated that this technology will

reduce the number of cashiers needed to staff the structures.

By the end of 2007, three of the four parking structures were fully automated, whereby no cashiers are present on a daily basis. MacArthur Square is the only structure where some cashiers are present on a daily basis. In 2007, 67.4 percent of all revenue was processed through the automated equipment, compared to 52.4 percent in 2006. In addition, 48 percent of all payments were made with credit cards, compared to 37 percent in 2006.

The 2006 Parking Fund budget included \$1.3 million to purchase and install multi-space parking meters in the downtown area. The purpose of this request was to replace the old, single-spaced parking meter with a multi-space parking meter that accepts credit/debit cards. After an RFP process, the City selected Digital Payment Technologies and the LUKE parking meter. The City purchased and installed 103 meters to replace up to 1,100 single-spaced parking meters in the first phase of a three-phase project. The LUKE parking meter accepts coins and credit/debit cards and issues a receipt. The meters are networked, so payment can be made at any meter as long as a space number is entered. All transactions are in real time with real-time reporting on usage, revenue and meter status. The meter management system is fully automated and enhances adjudication, financial auditing and meter maintenance capabilities. Based on 2007 activity, the highest number of weekly transactions totaled 21,337 with the average cash transaction of \$0.89 and the average credit card transaction of \$1.52. Credit card transactions totaled 25 percent of all transactions and 36 percent of all revenue.

Parking Structures

The DPW was very active in negotiating lease agreements for spaces in City-owned parking structures. An agreement was reached with Fourth and Highland LLC to lease parking spaces in the 4th Street and Highland Avenue parking structure. The term of the agreement is for 25 years with two extensions totaling 25 years. By April 2010, 444 parking spaces will be leased and by April 2012, the spaces will be charged at market rate. The agreement supports a development investment totaling \$206 million in the Park East corridor.

In addition, the restaurant space at 4th Street and Highland Avenue was leased to a new lessee under the same terms and conditions, but was extended an additional three years to 2017. Approximately \$120,000 was generated in 2007 under the lease agreement.

Public Works Coordination

Major Projects The Department of Public Works Administrative Services Division coordinated planning and construction of public improvements for several major projects during 2007. These projects included the BREWERY project at the site of the former Pabst Brewing Company, Harley-Davidson Museum and the Manpower headquarters building.

Special Projects

This office received a Coastal Management Grant from the State of Wisconsin for the Ember Lane River Improvement and Access Project. This project entails the erection of a screen barrier to prevent floating trash from collecting in the corner where the Menomonee River and Ember Lane meet. The project will also provide a much-needed access point for non-motorized boat launching.

This office was successful in obtaining a Stewardship Grant from the Wisconsin Department of Natural Resources for the development of the Hartung Park-Phase I, which consists of transforming a six-acre parcel into passive recreational facilities with trails, rain gardens, playfields, etc. The Hartung Park Community Association played a crucial role in the planning process in cooperation with Alderman Bohl. It is hoped that Phase I of the park project can be started in September 2008.

The remaining 13 acres will continue to serve as a place for City forces to dispose of all the excavated materials generated on a daily basis.

Development

This division also coordinated the design and construction of public infrastructure for several single-family home subdivisions including River Ridge, River View, River Highlands, Tara Vista and Oak Hill. These projects will potentially add over 200 new single-home residences in Milwaukee's North West side.

In addition, DPW assisted the Department of City Development (DCD) in several near north side development projects such as the Legacy and Walnut Circle subdivisions.

Riverwalk

In general, the Administration Office plays the role of the Riverwalk custodian for the City-owned segments in particular. In addition to the routine upkeep of the Riverwalk, this office worked closely with the Riverwalk Business Improvement District No. 15 (BID 15) and DCD to implement a plan to satisfy the Americans with Disabilities Act settlement with the Department of

Justice of the State of Wisconsin. The settlement required the City of Milwaukee and owners of the Riverwalk within BID 15 to construct either ramps or lifts to provide access for wheelchair-bound Riverwalk users. The project is underway with a newly constructed lift and anticipated construction of ramps at Mason Street Plaza and at Usinger's Riverwalk near the State Street bridge.

This office also administers the River Skimmer operation, which runs yearly along the Milwaukee and Menomonee Rivers. In 2007, the skimmer collected on average 11 cubic yards of debris daily.

Contract Administration

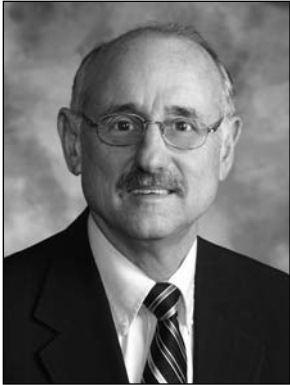
DPW contracts for all City infrastructure projects. It also contracts for several major public service functions including solid waste recycling, public parking structure operation, vehicle towing and parking meter revenue collection. During 2007, 133 formal contracts were awarded, totaling over \$46,978,184. Through its contracts, DPW leverages employment opportunities for City residents who live within the Community Development Block Grant boundaries, known as the Target Residence Areas. This initiative is formally known as the Residents Preference Program. The department requires that at least 25 percent of all hours worked on individual City contracts be allocated to unemployed residents of the target area. For the 2007 contracts that were closed out as of August 12, 2008, resident participation averaged 30.4 percent of all contract hours worked.

DPW requires that contractors use Emerging Business Enterprises (EBE) in their contracts. EBE firms are certified by the City and are mandated by ordinance to be involved in at least 18 percent of all work contracted by the department. In 2007, the overall EBE participation requirement for DPW contracts closed out as of August 12, 2008 was 17.4 percent. The EBE percentage required for the closed contracts to date has been insignificantly under the 18 percent benchmark because of the highly specialized work of these contracts, many of which EBEs are not available to perform work.

Nonetheless, as of August 12, 2008, qualified Emerging Business Enterprises have performed 25.1 percent of the work on average for all of the closed 2007 contracts. DPW staff meets on regular basis with potential EBE firms during orientation meetings coordinated by the EBE office.

As part of its contracting activities, the department actively monitors all public works contracts for compliance with the Prevailing Wage and Livable Wage ordinances. If underpayment to workers is discovered, the department collects makeup payments from offending contractors and distributes them to the underpaid workers. Penalties, including debarment, can be levied.

Need one administrative feature story here.



Zeidler Municipal Building
841 North Broadway, Room 516
(414) 286-8333

James P. Purko, *Operations Divisions Director*
Venu J. Gupta, *Buildings and Fleet Superintendent*
Preston D. Cole, *Environmental Services Superintendent*

The Operations Division was created in 2002 by consolidating the Forestry, Sanitation and Buildings and Fleet divisions. The division is responsible for solid waste collection and disposal, recycling and waste reduction, trees and landscaping, fleet maintenance and dispatch, support services to City facilities, and snow and ice control.

Administration

The Administration section coordinates, prepares and monitors the division's operating and capital budgets. A small, cross-trained administrative staff provides key support, including monitoring the facilities hotline and quickly dispatching service requests for City buildings, maintaining the City's keycard access database, responding to solid waste fee inquiries and environmental code citations and generating over \$1,000,000 in accounts receivable invoices annually. This section also manages the solid waste scale system that tracks all refuse and recycling brought through the City's three transfer sites.

Building and Fleet Services

Buildings and Fleet Services is a composite of licensed professionals, skilled trades, certified mechanics and technicians, fleet operators, communication specialists, dispatchers and experienced office staff. Buildings and Fleet serves the needs of employees, managers, agencies, departments and the public users of city facilities. The division's goal is to provide efficient and effective service to internal and external customers by supplying quality work environments and a well-maintained fleet. Buildings and Fleet has undergone many changes over the past several years to streamline methods and processes. Our future is the vast array of talent, our employees, who on a day-to-day basis do the work and represent the front line teamwork of our services and projects.

Environmental Services

The merged Forestry and Sanitation sections continue to explore new opportunities for improved efficiencies resulting in a more cost-effective Environmental Services. These include facilities usage, equipment, emergency management, staff cross-training and customer service. Utilizing these opportunities ensures that the Environmental Services section continues to provide the City of Milwaukee high-quality services at the lowest possible cost. The division's goal is to make Milwaukee cleaner and greener.



Zeidler Municipal Building
841 North Broadway, Room 602
(414) 286-8333

Venu J. Gupta, *Buildings & Fleet Superintendent*
Gary Kulwicki, *Facilities Manager*
Fred Gunther, *Fleet Manager*

Buildings and Fleet Services is the classic example of an internal service agency providing core services to City departments and agencies. The division is a composite of licensed professionals, skilled trades, certified mechanics and technicians, experienced fleet drivers, communication operations, dispatchers and experienced office staff.

The division has undergone a multitude of staffing changes throughout the past several years. A vast number of methods and processes have been streamlined and the application of technology has created a more efficient and effective section.

Facilities Development and Management Section

Facilities Development and Management provides building maintenance services, design and consulting services, project management and inspections and evaluations for the repair, operations and renovation of the City's building assets. The staff of skilled craftsmen, technicians and professionals provides these services to City agencies and department offices, field headquarters, shops and storage facilities housed in over 200 buildings.

Facilities section is comprised of functional units that provide design, electrical, communications, information, security, custodial, carpentry/masonry, painting and recreational services. Staff includes registered architects, professional engineers, certified master electricians and trained technicians, journeyman skilled carpenters, bricklayers and painters. The custodial and laborer staff is well skilled in their area and provides a multitude of talents in facilities management.

In 2007, diversified staff provided construction and project management services in partnership with consulting firms and remodeled over 20,000-square feet of office and field space, installed seven miles of optical fiber and painted 1,800 feet of piping, in addition to our multitude of daily preventative and routine maintenance responsibilities. As an integral part of the section's

design-build team, staff is involved in major projects, including renovation and construction projects for the Police and Fire Departments and the Heath Department Offices, as well as the completion of the Vice Control Unit remodeling at the Police Administration Building.

Information & Security Services

The unit consists of a small group of Communication Assistant III employees and management, who occupy the City Hall Information Center and provide after-hours call center services. They also act as the central station monitoring center for DPW buildings on an around the clock basis. The City contracts with a security provider during the weekends, along with second and third shifts on the weekdays. These officers provide watch tour and patrol service, along with monthly fire extinguisher and weekly automated external defibrillator (AED) inspections in the City Hall complex. Their specific responsibility is to protect the assets under the control of the Department of Public Works. This group also provides consulting services to other City departments on security-related matters and alarm system. The long-term plan is to manage all of our security function through this system in all DPW-managed buildings.

The Communications Unit

The Communications Unit provides and maintains the City's copper cable plant and fiber optic backbone for data and telephone transmission. The unit is staffed by journeyman electrical mechanics, electrical workers and laborers. The staff is responsible for the maintenance of the City's telephone system, street lighting control circuitry, various alarm systems, all City public address systems and the Community Safety Wide Area Network serving the Fire and Police Departments Dispatch



Section and Police call boxes. This unit is also involved in the remodeling and construction of City facilities when phone and data wiring and fiber connectivity are required. Communications continues to be in the forefront of the fiber optic and local area network hub technologies linking DPW, other City Departments and other government and education facilities.

In 2007, the Communications Unit continued to maintain the Avaya phone system. The phone system has switches distributed throughout City buildings to provide the features of the Avaya phone system to City staff. The Avaya phone system allows Communications to install a telephone system within the DPW network utilizing only a pair of fiber. In the past, providing phone service involved running copper cables sometimes several miles to the nearest phone node. With the present system, relocating a phone system to meet City needs is considerably easier because of reduced cost, size, power needs and environmental needs.

In 2007, Communications installed approximately three miles of fiber optic cable to enhance the City's data and telecommunication network. Only a few other municipalities in the nation own and use such a community fiber network.

In addition to meeting the challenges of installing state-of-the-art infrastructure technology, this unit installed approximately 13 miles of copper cable due to cable damage, failure or to accommodate paving and other construction projects. Historically, Communications installed approximately 36 miles of copper cable.

The most significant construction project impacting Communications in 2007 was the Marquette Interchange Project, which started in fall 2003 and is scheduled to be completed in 2008. Late in 2007, the Communications Unit began the task of relocating cables back into the Winnebago and Wisconsin Avenue bridge structures. Cables containing hundreds of circuit-feeding conductors were relocated for these projects without causing any significant outages. Future projects will be coordinated around the activities of the Marquette Interchange to take advantage of planned outages while adding to reliability and redundancy of the fiber network. With the Marquette Interchange

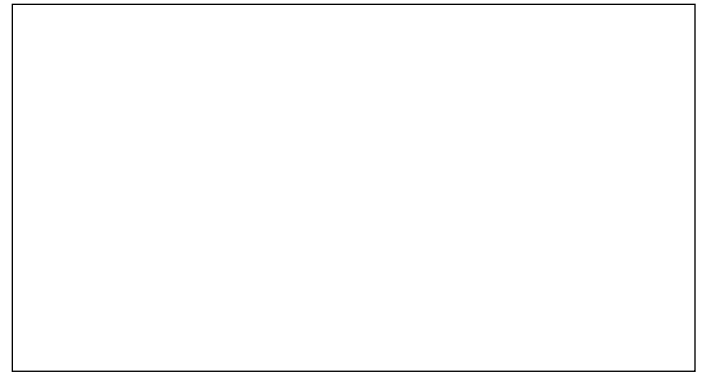
Project being completed in 2008, planning for the Interstate Highway 94 North-South Corridor has started with alterations for 2008 and beyond. This project will impact Communications cables on the West College Avenue Structure, West Layton Avenue Structure and South 20th Street Structure.

Finally, Communications staff provides service 24 hours a day, 7 days a week, 365 days a year in maintaining the citywide data and telephone system. As communications technologies advance, staff provides and maintains the latest in category 6 cabling for Local Area Networks as well as multimode and single mode fiber connectivity utilized by the City's ATM, SONET with DWDM and Gigabit Ethernet networking technologies.

The Carpentry/Masonry Unit

A staff of highly skilled tradespeople, which includes carpenters, bricklayers and laborers, continues to perform high-quality work while containing costs.

Some of the larger jobs completed were remodeling



of the Zeidler Municipal Building basement corridor and remodeling portions of the second floor Health Department reception area, the tenth floor elevator lobby and the Budget Department on the sixth floor of City Hall.

In addition to the jobs listed above, staff also maintains 58 children's play areas. They responded to thousands of board-ups, nearly half of which were emergency responses. Staff is on call around the clock and respond to requests from the Police and Fire Departments and the Department of Neighborhood Service.

The Paintings Services Unit

This unit provided interior and exterior painting services at numerous City buildings, including Water Works, Fire Department, City Hall complex, Police District Stations and DPW facilities. This unit also has capabilities in specialist painting techniques, applications and special effects such as marbling, spattering design and textured surfaces, as well as being certified in lead abatement. Our staff of journeymen painters completed 1,800 lineal feet of 48-inch diameter water pipe in the Linnwood Water Treatment plant and the newly remodeled portion of the sixth floor of the Police Administration Building.

The Mechanical Design Unit

The Mechanical Design Unit's engineering professionals lead DPW in managing and/or coordinating the planning, programming, and design and construction process of mechanical systems for existing and new City-owned buildings. The unit manages the design and construction of building mechanical systems projects, including project scheduling, budget control, compliance with design standards, resolution of on-site construction problems and overall project quality control in coordination with user agencies. Staff provides engineering services to enhance the condition and prolong the useful life of public facilities. Engineering design services are provided for fire life/safety systems, asbestos and lead paint abatement projects. Also provided are design services for the citywide fuel dispensing systems to meet the Environmental Protection Agency and State of Wisconsin Department of Natural Resources requirements.

Recycling Education Center Photovoltaic and Geothermal Installation

At the Recycling Education Center, 1313 West Mt. Vernon Avenue, a Geothermal System (ground-source heat pump) and a Photovoltaic Power System were installed.



Photovoltaic panels on roof of the Recycling Education Center

A ground-source heat pump (GSHP) extracts solar heat stored in the upper layers of the earth and delivers it to a building. Conversely, in the summer season, the heat pump rejects heat removed from the building into the ground rather than the atmosphere or a body of water.

A solar electric system, which is tied to the We Energies' distribution grid, consists of solar electric modules connected to an inverter and tied into the site's electric service. When excess power is produced by the solar electric system, it can be put back onto the electric grid. Solar electric systems produce power intermittently because they work only when the sun is shining. This is not a problem for grid-tied solar electric systems because the electric utility provides backup power. When the solar electric system generates more power than the site needs at any particular moment, the power is put back into the grid.

Central Repair Garage Mechanical Systems Upgrade

At the Central Repair Garage, 2142 West Canal Street, the first phase of a mechanical systems upgrade project was completed.



New mechanical equipment at Central Repair Garage

This phase of work included replacing heating, ventilating and air conditioning equipment that had surpassed its expected useful life and was in poor condition. The new equipment was designed to meet building comfort requirements and be more energy efficient.

A replacement of about one-third of the garage roof, where much of the new equipment was installed, was also completed and coordinated with the equipment replacement.

The Architectural Design Unit

The regular replacement of the roof of the 809 Building was scheduled for 2007. Initial investigations indicated this site to be an ideal candidate for a green roof.

Because the building was originally used as a parking garage, the roof structure was strong enough to handle



809 North Broadway Building – Green Roof

the additional loads of a green roof. Conditioned office space below the roof allowed for greater energy savings, and the prominent location provided maximum positive image impact. This site allowed the City to directly demonstrate the goals defined in the City of Milwaukee Green Team Report, such as reduction of storm water run-off, energy conservation and recycling.

DPW Operations applied for and received \$52,200 in grant funding to offset costs of the installation of the green roof. The green roof materials are comprised of an additional five layers of materials over standard roofing installation. The materials are designed to capture and retain rain water to lessen storm water run-off and cool the building. The top layers include the plants, specially selected for their draught tolerance, and soil design to retain water and remain in place in a windy environment.

Green roofs protect the roof membrane from UV radiation, hail, wind, foot traffic and accidental damage during regular maintenance of rooftop mechanical systems. Studies have shown a 10 year or greater extension of roof life, the estimated savings of which is estimated to be \$84,000. Other benefits of the green roof include \$65,000 in energy savings over the anticipated 35-year life of the roof. Storm water runoff will be reduced by over 50 percent. For every inch of storm water that falls on the 809 Building and is retained, 10,500 gallons is saved from the sewer system. The existing roofing materials removed for this installation were recycled rather than sent to a landfill.

The focus on improving quality of life in urban environments has made these issues more pertinent than ever. Green roofs meet the objectives of many mandates to improve the air quality of cities by mitigating the effects of heat islands caused by ever-increasing development.

Milwaukee City Hall Historic Building Restoration

The restoration of Milwaukee's City Hall has continued through 2007 with the removal of major deteriorated elements on the south tower, including the copper roof and clay tile underlayment, corner terra cotta turrets and lion heads, and the other masonry features taken down to the twelve floor level. On the east and west sides of the main building, selective demolition has occurred with the removal of the eighth floor's 20 existing dormers and perimeter gutter system.

The selection of new brick, terra cotta and stone pieces was made to blend with the aged spectrum of existing material colors. New materials were ordered to allow for the long lead and curing times. When complete, this project will have replaced over 10,000 terra cotta pieces and 200,000 bricks.

Many mock-ups of material colors, finishes and construction details have and will continue to take place to confirm that all parties have a clear understanding of the contract documents and to insure a quality restoration project.

The project team is looking forward to the rebuilding/restoration phase planned for 2007 and 2008 as this project continues to exceed the City's provisional requirements and meet the budget and completion date of November 2008.

The project team includes the Engberg Anderson Design Partnership consulting team and the general contracting company of JP Cullen & Sons with support from Concord/Tharps for accounting services and Prism Technical Management & Marketing Services for monitoring the City's provisional requirements. The project is being overseen by Buildings and Fleet.



*Milwaukee City Hall – North side of South Tower
200 East Wells Street*

Special Electrical Services Unit

The Electrical Services unit consists of skilled and dedicated electrical mechanics specializing in the fields of electrical wiring, maintenance and construction. Over 50 percent of our staff is credentialed as Master Electricians and others hold credentials in refrigeration, electrical inspection and industrial instrumentation.

We provide a wide variety of electrical services for all City-owned facilities including police districts, fire houses, parking garages, forestry and sanitation yards, and the Port of Milwaukee.

In 2007, Special Electrical Services completed a multitude of construction projects, ranging from small office and shop alterations to large-scale remodeling projects.

The unit worked on the Police Administration sixth floor Vice Control and Lineup Projects. Each project involved providing updated power distribution systems throughout with energy efficient lighting, HVAC, security, life safety and controls. Schedules and resource management met expectations on these projects and allowed the unit to secure additional work during 2007.

During the year, the unit worked on a host of capital projects large and small, including: at the Zeidler Municipal Building, continued progress on electrical upgrade projects, first floor DNS/Health Office alteration project, eleventh floor Motor Control Center replacement and upgrade and emergency power distribution infrastructure. All the projects required detailed planning and coordination between departments.

In 2007, Special Electrical Services continued to work extensively on upgrading the aging electrical distribution systems within the City Hall complex. The work involved designing and installing new feeder load panels within pipe chases for accessibility and safety, in addition to the replacement of fuses with circuit breakers. Staff is actively involved in the pursuit of design, review and planning of the City Hall power separation project scheduled for installation in 2008.

Special Electrical Services continued to concentrate its effort in responding to customer-generated electrical needs and requests. Through the Proteus Work Order System, the Operations and Maintenance staff was able to manage a substantial volume of requests while still responding to demand maintenance requests from citywide department locations. These requests are primarily from the Police, Fire, Port and Parking Enforcement Departments.

New to 2007, department timekeeping and cost tracking functions were transferred onto the Proteus Work Order System.

Throughout 2007, staff members participated in a wide range of continuing education opportunities. Examples include: Arc-Flash Safety and National Electrical Code Classes and Vendor Specific Equipment

Education. As always, the unit has been very adaptable to the changing work environment brought on by new systems and technology.

Special Electrical Services continues and makes every effort to provide prompt, competitive service to meet the City of Milwaukee's most critical electrical needs. Providing 24-hour, on-call emergency call-in service, the unit prides itself on its ability to perform high-quality, reliable electrical service to our valued customer base.

The Recreational Facilities Design Unit

The Recreational Facilities Unit provides the City of Milwaukee with neighborhood green spaces in which residents both young and old can enjoy activity and relaxation. The

Recreational Facilities Unit is responsible for operating, maintaining and the reconstructing as required of 48 active areas and 11 passive areas, as well as major reconstructions of 36 play fields for Milwaukee Public Schools. The reconstructions are dictated by the age of the facility, safety, demographics and neighborhood needs. These needs are addressed in the reconstruction of the facility, which requires a field survey, design, contract drawings, contract documents, specifications, inspections and payments.

Despite constrained budgets, the recreational facilities unit, with years of experience, rises to the challenge by economizing and making the best use of taxpayer dollars, all while surpassing the guidelines set forth in green initiatives. The Recreational Facilities reconstructed in 2007 are as follows:



Lewis Play Field – 1424 East Pryor Avenue

In spring 2007, the finishing touches of the Lewis Play Field

Above, a variety of trees were planted with the greening grant.

Right, the neighborhood group held a re-opening celebration in June 2007.





AFTER

reconstruction were completed. The existing asphalt path was seal coated and additional trees were planted in the newly expanded green area. With the variety of trees in

the play field, children from three nearby elementary schools will have an area in which to learn tree identification. A new accessible play structure, play panels, swing unit and benches were installed in 2006. At the completion of the reconstruction the neighborhood group "Friends of Lewis Play Field" held a re-opening celebration. Mayor Tom Barrett and other dignitaries gave speeches and the Fritsche Middle School Drum Line provided rousing music.

North 45th Street and West Keefe Avenue Play Lot – 3512 North 45th Street

The North 45th Street and West Keefe Avenue Play Lot was reconstructed to make the site accessible. A transfer station atop resilient surfacing was installed on the existing play structure. Two badly worn swing units were consolidated into one centrally located swing unit. A new asphalt path provides access to the play areas, educational play panels and existing relocated benches. Despite budget constraints, the play lot has become more accessible and educational for the children, as well as more comfortable for those supervising the children.



BEFORE



AFTER



BEFORE



AFTER

Riverside Play Field - East Park Place and North Newhall Street

Only four of the existing seven tennis

courts at the Riverside Play Field were left usable after the construction of the Urban Ecology Center. Since six tennis courts are required for tournaments, a total reconstruction was necessary. Despite budget constraints, limited area and the sloped terrain, a novel and unprecedented design was created. By building two retaining walls, six tennis courts were fit into the area. An asphalt path between the tennis courts and the Urban Ecology Center provides access into the play field. When viewing this site with the extended tree border and path, it is clear the challenges of this reconstruction were met and surpassed.

The Operations and Maintenance Unit

Energy Efficiency and Operating Costs

In October 2005, Mayor Barrett introduced his initiatives to map the future course of Milwaukee's efforts to be "green."

The Facilities Development and

Management role in these efforts is to incorporate sustainable design and engineering concepts in our projects. Our goal is to continue implementing energy efficient measures in the lighting and mechanical equipment areas to reduce electrical usage. Our efforts extend in the use of green products for in-house and contracted custodial services.



Fleet Services

Fleet Services consists of two sections, Fleet Operations and Fleet Repairs. Fleet Operations schedules approximately 400 operators, support people and laborers on a daily basis for environmental services, street and sewer maintenance. Fleet Repairs maintains approximately 3,400 pieces of equipment and components for the DPW fleet, along with over 750 vehicles for the Milwaukee Police Department. Fleet Services repairs and maintains equipment at four locations on two shifts at the following locations:

- Central Repair Garage , 2142 West Canal Street
- Lincoln, 3921 West Lincoln Avenue
- Northwest, 3025 West Ruby Avenue
- DPW Field Headquarters, 3850 North 35th Street

Central Repair Garage Improvements

Built in 1978, the Central Repair Garage is the main headquarters for Fleet Services. The building was in need of a major mechanical systems upgrade. The HVAC replacement was completed in the middle of 2007 and a new roof was installed on the center section of the building. Phase II will begin in 2008 with several upgrades planned, including in-ground hoist replacements, a new compressed air system, a new lubrication/fluids distribution system, a new backup generator and uninterrupted power system (UPS), more efficient shop lighting and brighter interior paint.

New Equipment

Fleet Services has taken delivery of a variety of new equipment in 2007, including:

- Fourteen 5-yard dump trucks equipped with underbody and front plows with salt hoppers.
- Two 40-foot aerial lift trucks for Infrastructure-Electrical Services, equipped with a rotating work platform.
- Eleven hybrid SUV trucks for investigator use (below).
- Twelve small cargo vans with engines that can use both gasoline and 85 percent ethanol (E85).
- Four multi-use platform trucks, each equipped with a removable compressor unit, salt hopper, plow, and stake sides (below). These trucks are configured for use in all seasons.
- Six 25-yard recycling packers for Sanitation Services for residential recycling collection.
- Two 16-yard tri-axle dump trucks, equipped for plowing snow and distributing salt (below).
- Nineteen 25-yard refuse packers with cart lifters for Sanitation Services for use in residential refuse collection.
- One 3-yard street sweeper, equipped with automatic lubrication device, to reduce required maintenance and increase service life.
- One 60-foot, over-center aerial lift for the Forestry Division, equipped with a chip box (below).
- Two 5-yard dump trucks with six-passenger crew cabs.
- One truck-mounted log loader crane with 20-yard dump body for use by multiple departments during each season.



Hybrid SUV Truck



Multi-use Platform Truck



Multi-use Platform Truck



Multi-use Platform Truck



16-yard Tri-axle Dump Truck



60-foot, Over-center Aerial Lift

Green Initiatives

Fleet Services operates one of the largest public fleets in the state and continually strives to reduce vehicle emissions and pollution and recycle and/or reuse materials whenever opportunities arise. Among the initiative undertaken in 2007, Fleet Services:

- Installed diesel oxidation catalyst (DOC) mufflers on 50 refuse packers through a grant from the EPA. The use of DOC mufflers reduces particulate matter and hydrocarbons emitted.
- Increased use of biodiesel from 2 percent in 2006 to 10 percent in 2007, displacing over 50,000 gallons of petroleum diesel fuel with cleaner-burning biodiesel fuel.
- Purchased several hybrid vehicles, improving fuel economy drastically over the previously used vehicles.
- Strengthened efforts and programs to reduce and/or eliminate useless engine idling.
- Expanded the use of nitrogen for inflating vehicle tires.
- Recycled used automotive batteries, wooden pallets, catalytic converters, antifreeze and scrap metal.
- Reused motor oil to provide heat for the service bays at the Field Headquarters and the offices at the Central Repair Garage.
- Continued to install energy-saving LED lighting on new vehicles and equipment.

Training – Field Service

In 2007, the Operations Section's Driver Instructor Trainers and Auxiliary Trainers held a total of 1,114 training classes for 26 different types of equipment for department employees. This included major refreshers on refuse packers, leaf operations and snow plowing techniques. In addition, 115 evaluations were performed, along with 36 forklift certifications issued.

Field service repairs are also performed under the direction of the Dispatch office. As shown in the table below, the five field service technicians performed 9,220 total service calls in 2007.

2007 Field Service Calls	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Totals
Total Field Service Calls	2,418	2,110	1,979	2,713	9,220
Average Time in Minutes per Call	33.0	32.7	32.9	31.1	32.4
Average Calls per day, per Technician	10.3	10.6	9.5	10.6	10.2

Tire Shop Information

In 2007, the Tire Shop continued to expand the use of nitrogen-filled tires to include trailers, which typically are idle during winter months, during which time air gradually leaks out of tires. Nitrogen-inflated tires tend

to maintain pressure longer than tires filled with compressed air, thus reducing the need for maintenance. The chart below summarizes the major activities of the Tire Shop in 2007.

2007 Tire Shop Information	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Totals
Total Tires Mounted – 2007	897	777	960	746	3,380
Total Tires Repaired – 2007	1,487	1,298	1,527	1,323	5,635
Total Tire Service Calls – 2007	831	798	932	793	3,354

Repairs Section

One of Fleet Service's core missions is to make equipment available for departments when they require it. For Police and other light equipment, the Repairs Section strives to keep a minimum of 95 percent of equipment available at all times. The benchmark for heavy equipment is a 90 percent availability rate at all times. In 2007, the Repairs Section maintained the following availability rates:

- Police equipment: 96.4 percent
- Light equipment: 95.1 percent
- Heavy equipment: 92.8 percent

The following table provides a summary of the work performed by Fleet Repairs in 2007 along with a vehicle count.

2007 Summary of the Work Performed by Fleet Repairs	
Repair orders	31,110
Preventive maintenance inspections performed.....	7,874
Stockroom activity.....	\$4,701,550
Vehicles serviced	
Automobiles.....	102
Vans.....	161
Pickups.....	291
Police units	755
Parking enforcement	48
Packers, rear load.....	132
Packers, front load and roll-off	21
Packers, recycling.....	49
Tractors.....	63
Street sweepers	21
Sewer cleaners, flushers, etc.....	19
Construction equipment	481
Trucks, all other	378
Compressors	83
Vehicle Total.....	2,604
Non-Automotive equipment.....	1,538
Total Equipment Serviced	4,142



Zeidler Municipal Building
841 North Broadway, Room 619
(414) 286-8282

Preston D. Cole, *Environmental Services Superintendent*
Wanda Booker, *Sanitation Services Manager*
David Sivy, *Forestry Services Manager*

Environmental Services fosters community and provides ecological benefits through clean neighborhoods and a vibrant urban forest. Well-maintained neighborhoods with healthy street trees and boulevards add quality of life, contribute to safe neighborhoods, reduce stormwater runoff, provide shade and conserve resources. The “Clean & Green” mission of Environmental Services promotes neighborhood cleanliness, reduces waste, encourages recycling, maintains safe roadways during snow and ice and manages and cares for a growing urban forest.

Sanitation

Operations

New Sanitation Services Manager. Wanda Booker was promoted to Sanitation Services Manager in February 2007. In her role, Ms. Booker oversees the daily operations of the Sanitation Section, managing a staff of 400 who maintain a clean Milwaukee through refuse collection, curbside recycling, street sweeping, fall leaf pick up and nuisance garbage removal.

Solid Waste Collection. In 2007, Environmental Services collected 182,201 tons of residential garbage from single- and multi-family households of four units or less. The City provided garbage collection to 1,314 apartments of five units or more at full cost to the property owner which generated \$1,075,900 in revenue.

Environmental Services also collected and composted 29,900 tons of ‘green’ waste, including brush, leaves and yard waste. Composting reduces the amount of solid waste sent to landfills. The City provides curbside brush collection of four cubic yards or less from March through November. Leaves are collected from October through the first snowfall. Grass and other yard waste must be taken to a City self-help center.

Project Clean & Green. Project Clean & Green (PCG) is an annual spring cleanup program to improve

the condition and appearance of Milwaukee neighborhoods. PCG offers residents the opportunity to clean out their homes and garages and includes residential bulky collections and neighborhood cleanups and promotes greening efforts. In its third year, PCG implemented an extensive radio campaign to build program recognition. As a result of growing awareness, collection tonnages have increased 8 percent since the program began. 2007 Project Clean & Green results included:

- 1,815 tons of refuse
- 4,806 brush piles
- 3,201 tires
- 1,067 bulky piles
- 5,799 furniture piles
- 2,098 street/alley yards swept

Recycling and Waste Reduction. Environmental Services generated \$1.3 million in revenue from the sale of 24,017 tons of recyclables. The City provides residential recycling to households with City garbage service. Recycling saves on landfill costs and conserves energy and resources.

To provide a greater level of service and increase recycling tonnages, twice-per-month recycling collection was piloted on two routes in 2007. As a result of a previous pilot program where residents placed their recycling cart at the curb on a regular schedule, the 2007 pilot was designed to address two areas of concern – infrequent recycling collection and random monthly collection dates. The pilot program guaranteed two collections per month scheduled on the same day of the week to ensure greater consistency. Offering first and third week collection or second and fourth week collection provided residents with a more meaningful collection schedule. The pilot was implemented in neighborhoods with some of the highest recycling rates in the City. The results were a 3.6 percent increase in the portion of solid waste recycled versus a 0.4 percent increase citywide.

Cart set-outs resulted in increased collection efficiency with 9.7 percent greater tonnage collected per labor hour.

To increase recycling participation in target neighborhoods, 1,200 central city households were converted from 18 gallon bins to 95 gallon carts for recycling service. The growth in owner-occupied single-family housing in these neighborhoods improves the success of recycling. In 2007, comparisons show recycling tonnages increased 50 percent over the previous year.

Efforts to increase recycling have generated results. Recycling initiatives have resulted in the collection of:

- Over 200 tons of unwanted household electronic scrap, including computer and computer accessories.
- 43.5 tons of recyclables from festivals – more than double the 2006 totals.
- 1.2 million plastic bottles from Miller Park – a 14 percent increase over 2006.
- Compost bin sale in partnership with Keep Greater Milwaukee Beautiful.

Snow and Ice Control. Environmental Services conducts snow and ice operations to maintain safe roadways during the winter months. The 2007 winter season was a record maker with 77.8 inches of snow that required seven full plowings and 55 general ice control operations. Snow plowing operations impact the garbage and recycling collection schedule as the same drivers and trucks are used for each.

Service Improvements

Nuisance Cleanups. In a move to improve responsiveness, Environmental Services assumed responsibility for abatement of City-owned vacant lots. Environmental Services performed nuisance cleanups on 1,000 City-owned vacant lots averaging a three-day response time following notification from the Department of Neighborhood Services.

Community Outreach

Recycling with a Personal Touch Study.

Environmental Services received a \$43,500 grant from the U.S. Environmental Protection Agency to test the effectiveness of personal contact in delivering recycling education that changes behavior by increasing recycling participation. The study uses the premise of social marketing suggesting that message source and personal contact impact how a message is received and the results the message generates. The study targets neighborhoods with low recycling participation to receive recycling education and outreach through different methods of personal contact and measures their impact on recycling

participation. Keep Greater Milwaukee Beautiful served as a project partner. The study will continue in 2008.

Cans for Cash City Recycling Challenge. For the fourth consecutive year, the City of Milwaukee participated and won first place for the most aluminum cans collected in the national recycling contest. The *Cans for Cash City Recycling Challenge* is sponsored by the U.S. Conference of Mayors and Novelis Corporation, the world's largest aluminum can recycler, to highlight the value of recycling. In 2007, the City collected 1,385,328 pounds of aluminum cans or 47,101,152 individual cans over the one-month collection period from October 1-30, 2007. If stood end to end, the cans would form a line over 1,872 miles long stretching from City Hall to the Grand Canyon in Arizona. Recycling these cans saved over 2,077 cubic yards of landfill space and conserved the energy equivalent of over 2 million gallons of gasoline. The City received the top prize of \$5,000 bringing the total *Cans for Cash* prize earnings to \$25,000.

As a complement to the *Cans for Cash* national contest, Environmental Services, in partnership with Keep Greater Milwaukee Beautiful, conducted a school recycling competition with Milwaukee schools to collect aluminum cans for recycling. Eleven area schools participated and collected 60,724 cans. Winning schools included Walt Whitman Elementary School in first place, Hawley Environmental School in second place and Lincoln Avenue Elementary School and St. Roman's Catholic School tied for third place. These schools received cash prizes of \$500, \$250 and \$100, respectively. In fulfillment of his promise, Walt Whitman Principal Pat Rehl dressed in a skirt and danced the "can-can" for his students as a reward for earning first place for the second year in a row. In addition, participating schools received a live performance for their schools by "enviro-tainer" Jack Kaufmann who combines music and multi-media to teach and inspire children of all ages about the environment and recycling.

Nike Reuse-a-Shoe Program. Environmental Services participated in the ongoing Nike Reuse-a-Shoe Program to collect unwanted athletic shoes for recycling. Shoes are recycled into play surfaces for children and diverted from the landfill. In 2007, 8,827 pairs of athletic shoes were recycled bringing the total to 29,600 pairs of shoes over the course of the four-year program. Also, Environmental Services added eight new collection sites in 2007 for a total of 33 collection sites.

Forestry

Operations

Urban Forest Management. Environmental Services is responsible for the maintenance and care of the City's urban forest which is made up of over 200,000 street trees and 120 miles of boulevards and greenspace. In 2007, Environmental Services pruned 48,515 trees, planted 3,708 new trees and removed 3,453 trees due to hazardous condition, disease or storm damage. Boulevard landscaping included the use of 143,560 annuals, 2,706 perennials, 18,000 bulbs and 728 shrubs.

Environmental Services operates a 160-acre City-owned nursery in Franklin equipped with 30,000 square feet of greenhouse space. The nursery grows the plant material used on City streets and boulevards, including annuals, perennials, trees and shrubs. In addition, plant material is sold to neighboring municipalities and local organizations. In 2007, the nursery produced and sold 142,499 annuals generating \$70,486 in revenue.

Environmental Services completed the fourth year of a multi-year comprehensive inventory to document and classify the City's street tree population. In 2007, 37,500 trees were inventoried bringing the total inventory to approximately 120,000 trees or 60 percent of the population. A complete citywide street tree inventory will serve as a valuable management tool to direct operations, and a database will quantify the benefits of the City's urban canopy.

Environmental Services partnered with the State of Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) to continue the Emerald Ash Borer (EAB) survey. The city provided 15 ash trees that were girdled or placed under stress to increase vulnerability to the disease. No signs of EAB infestation were found. Environmental Services, along with DATCP and Wisconsin's Department of Natural Resources, will continue to monitor for the presence of EAB in Milwaukee. Other insect control activities included limited spraying for gypsy moth at targeted locations.

2007 Professional Grounds Management Honor.

The Professional Grounds Management Society (PGMS) presented Environmental Services with an honor award in recognition of the care and management of the City's 120-mile boulevard system. The PGMS recognizes outstanding professional accomplishment and excellence in grounds management and promotes well-managed landscapes throughout the country. In particular, the PGMS notes the challenges faced in professional grounds management. Operating in the public right-of-way, Environmental Services faces many challenges, including landscaping around light poles and power lines, ensuring traffic safety with proper sight

lines and set-backs, safeguarding workers among oncoming traffic and repairing damage from de-icing agents, among others.

Gateway Signage Program. The Gateway Signage Program is a public-private partnership between the City of Milwaukee, Spirit of Milwaukee and Milwaukee's leading companies. The Gateway Signage Program is an opportunity for local companies to sponsor architectural signs on major boulevards or "gateways" in the City. Signs feature the Milwaukee mark or "Burke Brise Soleil" and include the corporate sponsor logo. The City receives one third of the sale price from each sign with the proceeds dedicated to boulevard maintenance. Two new gateway signs were installed in 2007. Mark Travel/FunJet sponsored a sign at 6th Street and Kilbourn Avenue. A second sign, sponsored by We Energies, was installed on McKinley Avenue at Hwy 43. A total of three signs are in place with the first sponsored by the Milwaukee Brewers located near the airport on Howell and Grange Avenues.

Kilbourn Avenue Boulevard Segment.

Environmental Services designed, constructed and landscaped a new boulevard segment on East Kilbourn Avenue at Prospect Avenue. The new boulevard segment was privately funded in an agreement with the developer of the Kilbourn Tower Condominiums who used the space for equipment staging during construction. The boulevard includes a public plaza with seating areas, a 60-foot lighted flagpole and large annual flower displays. The landscaping also includes 19 new trees, hundreds of shrubs and perennials and an automated irrigation system. The boulevard was recognized with a Mayor's Urban Design Award.

Service Improvements

Code Enforcement on City-owned Vacant Lots.

Environmental Services assumed responsibility for contract cutting of tall grass and noxious weeds on City-owned vacant lots from the Department of Neighborhood Services. The 2,869 City-owned vacant lots were maintained on contract and cut twice monthly in May, June and July and monthly in August and September. Contractors are required to maintain a schedule and cut each lot a minimum of every 14 days during the height of the growing season.

Environmental Services also performs code enforcement of noxious weed, tall grass, hazardous tree, encroachment and snow and ice ordinances on public and private property.

In 2007, the following code enforcement violations were issued:

- Hazardous tree condemnations – 842 notices issued
- Noxious weeds – 8,996 properties inspected
- Encroachments – 637 notices issued
- Sidewalk snow/ice – 6,360 properties inspected

Community Outreach

Sustainable Boulevards. As part of Milwaukee's Strategic Boulevard Plan, Environmental Services developed a plan to protect the City's 120-mile boulevard system. The plan restructures the boulevard system by increasing tree canopy, adding large landscaped "signature" beds at strategic locations throughout the City, removal of low-impact flower beds to be replaced with trees and turf and conversion to automated irrigation systems. Environmental Services conducted a community outreach campaign to present the plan to residents and solicit feedback. Results indicated that Milwaukee's boulevards are highly important to residents and support for the boulevard plan was over 80 percent. The outreach campaign included 30 public meetings citywide with a total of 636 residents. The boulevard plan was approved and included in the City's 2008 budget. The plan will be phased in over three years with implementation beginning in 2008.

Designation of 13th Aldermanic District as the Garden District. Environmental Services assisted Alderman Terry Witkowski to designate the 13th Aldermanic District as "The Garden District" of the City of Milwaukee. In partnership with the alderman, a group of district residents formed the Garden Committee. The mission of the Garden Committee is to improve quality of life by preserving, extending and supporting the gardening and beautification traditions of the residents, businesses and community organizations located in the 13th Aldermanic District. Environmental Services drafted a designation plan to provide a vision and a work plan to guide the activities and priorities of the Garden Committee. The plan offered guiding principles to lead the district by focusing on beautification, stewardship and resource sharing. The goal was to create a garden district identity that fosters the expectation of and raises the standard for beautification and landscaping on public and private property.

In its first season, the Garden Committee hosted two perennial plant exchanges, sponsored a garden talk with Melinda Myers, the "Plant Doctor," presented business landscape awards to 37 businesses to acknowledge their landscaping efforts and conducted a community planting project. The inaugural year accomplishments demonstrated the commitment and enthusiasm to improving the district. The Garden Committee joined the 13th District Neighborhood Association, which re-branded itself as the Garden District Neighborhood Association.

Formal designation was approved by the Common Council and Mayor Tom Barrett.

Arbor Day Celebration. The City's 42nd Annual Arbor Day Celebration was held April 25, 2007 at Master Lock Company located at 2600 North 32nd Street. Mayor Tom Barrett was joined by Carline Hannah, Human Resource Manager, Master Lock; Gloria McCutcheon, Southeast Regional Director, Wisconsin Department of Natural Resources; Debra Blanks, CEO, Social Development Commission; and Karole Kimble, Staff Assistant to Common Council President Alderman Willie Hines. The event featured the planting of flowering pear trees to signify the redevelopment of the 30th Street Industrial Corridor and was symbolic of the renewal efforts in the Corridor. Trees play a vital role in beautification and streetscape improvements that retain and attract new businesses.

City/County Christmas Tree. The 94th annual lighting ceremony for the joint City/County Christmas Tree was held on November 14th at Red Arrow Park. The Christmas tree, a 38-foot Colorado blue spruce, was donated by resident Elaine Burrows in memory of her husband. The tree was harvested by Environmental Services on November 6th.

Environmental Services Accomplishments

Greening of Norris Park. Environmental Services funded the 'greenfit' of Norris Park as part of a federal appropriation for Green Schools, an effort to improve Milwaukee Public Schools playgrounds by replacing portions of asphalt with trees and turf. Norris Park, located between 18th and 19th Streets and Kilbourn Avenue and State Street, is a former Milwaukee Public School site where only the asphalt playground remained. A total of 93,147 square feet of asphalt was removed. The area was seeded for turf and will be used primarily as a grass playfield. Environmental Services funded the project while Buildings and Fleet Recreation Services managed the construction.

Environmental Services receives Ceres Foundation Grant. Environmental Services was awarded a \$150,000 grant from the Ceres Foundation, Inc. to 'greenfit' MPS schools. Environmental Services used the existing federal appropriation to leverage additional funding for Green Schools. As a result of both federal and local foundation funding, Green Schools will reduce stormwater runoff from selected MPS schools, transform hardscape into playable surfaces and provide valuable shade and cooler temperatures for children to play. Construction will take place in 2008 and 2009.

Environmental Services University – Executive Leadership Development. Environmental Services University (ESU), a customized training and development program, was expanded to include executive leadership training. Executive leadership development focused on skill building in visioning, emotional intelligence, innovation, communication, strategic planning and motivation. A total of 24 Sanitation and Forestry managers

participated in executive leadership development. ESU also includes a management track comprised of an 11-course curriculum to provide professional enrichment, supervisory skills enhancement and management training for Sanitation and Forestry supervisors. First offered in 2006, a total of 36 Environmental Services employees have completed the professional management training.

Need one environmental feature story here.



Frank P. Zeidler Municipal Building
841 North Broadway, Room 701
(414) 286-2400

Jeffrey Polenske, *City Engineer*

Clark Wantoch, *Administration and Transportation Design Manager, Administration and Transportation Section*

Martin Aquino, *Engineer-in-Charge, Environmental Section*

Dale Mejaki, *Infrastructures Operations Manager, Field Operations Section*

Infrastucture Services Division is a front-line operational department that is responsible for the design, construction and maintenance of streets and alleys, bridges, traffic signals and signs, street and alley lighting, and sanitary and storm sewers. This division undertakes a variety of tasks related to transportation planning, ranging from nontraditional projects such as traffic calming to major roadway improvements. Additionally, this division is involved in almost every major private development that occurs citywide as it schedules projects and provides services vital to the growth, safety, comfort and quality of life within our community.

Expenditures in 2007

\$1,587,000	State & Federal Aid Bridges
\$11,251,000	State & Federal Aid Major Streets
\$28,000	State & Federal Aid Sewers
\$154,000	New Street Construction
\$1,693,000	New Sewer Construction
\$26,000	New Streets Developer
\$112,000	New Sewers Developer
\$586,000	Bridge Construction Local
\$5,565,000	Street Construction
\$746,000	Alley Construction
\$554,000	Sidewalk, Driveway, Curb Projects
\$818,000	Traffic Control Program
\$5,578,000	Street Lighting
\$311,000	Underground Conduits
\$213,000	Underground Communications and Electrical Manholes
\$19,502,000	Sewer Maintenance

Project Highlights for 2007

- To support the development of the Menomonee Valley Industrial Center as part of the redevelopment

of the Menomonee Valley, which is located east of the Miller Park ballpark, new roadway construction was undertaken on West Milwaukee Road, West Wheelhouse Road and South 36th Court. A community park, known as the Valley Passage Project, was developed with an emphasis on improved bike and pedestrian access between adjacent neighborhoods.

- Construction was completed on the Miller Park Reversible Lanes/Variable Message Sign Project. This project provides the necessary traffic control equipment, including overhead sign structures, static signage, pavement markings, Intelligent Transportation equipment and a variable message sign to allow efficient parking lot operations and two-way traffic operation on West Canal Street during stadium events.
- The division continued participation in the Kenosha-Racine-Milwaukee Commuter Rail Alternatives Analysis/Project Development/EIS Phase. This study, sponsored by the counties and cities of Kenosha, Racine and Milwaukee, the Wisconsin Department of Transportation (WisDOT) and the Southeastern Wisconsin Regional Planning Commission (SEWRPC), is intended to produce a Draft Environmental Impact Statement, refine the previous alternatives analysis and further develop a commuter transportation project within the corridor. This study will be complete in early 2008.
- The division continues participation in a study of downtown transit improvements known as the Milwaukee Downtown Transit Connector Alternatives Analysis. This study, sponsored by the City, Milwaukee County, the Metropolitan Milwaukee Association of Commerce and the Wisconsin Center District, is investigating alternative

downtown fixed guide way transit improvements linking multiple tourist and business venues. The Alternatives Analysis is expected to continue through 2008, culminating with selection of a Locally Preferred Alternative. With local consensus, the project could advance to the preliminary engineering phase of project development.

- The Wisconsin Department of Transportation (WisDOT) was the lead agent for the Marquette Interchange Freeway Project. Since the early 2000s, the City has participated in planning as the project impacted local roads and City utilities, followed by overseeing the local construction/relocation work for the roadways/utilities all while providing traffic mitigation. By the close of 2007, the majority of this City work was nearing an end. The City was proud to be part of such a large-scale project that is expected to come in under budget and ahead of schedule in August 2008.
- In 2007, significant gains were made to support bike initiatives in the City of Milwaukee: over 20,000 bike route maps were distributed, 700 more bike racks were installed bringing the total to 2,200 in the City and plans to develop two new bike paths were completed in 2007. In 2008, these two bike paths are anticipated to be constructed--Kinnickinnic River Bike Trail over the former Union Pacific Railroad right-of-way between South 6th Street and East Washington Street and the Beerline Bike/Recreational Corridor between East Burleigh Street and East Keefe Avenue.
- The Milwaukee Neighborhood Traffic Management Program has been developed to address speeding on local streets and various traffic-calming efforts are available to improve the circumstances. Traffic-calming measures include education, enforcement, encouragement and engineering.

Infrastructure Improvements for 2007

Sewer Projects. The following improvements were funded through the Sewer Maintenance Fund.

Hubbard Street Replacement Sewer: This project was performed to enlarge and replace a large combined sewer and junction chamber near the outfall of one of the City's largest combined sewer systems. The existing 72-inch brick sewer and junction chamber originally built in 1877 were replaced with a 78-inch reinforced concrete pipe and junction chamber. The total cost of this project was \$1.3 million.

West Stevenson Street/Honey Creek Sewers: This project was completed to correct a problem with the storm sewer outfall located near North 79th Street and West Mount Vernon Avenue. Testing of the outfall revealed the presence of human fecal coliform bacteria being discharged to Honey Creek. The City immediately lined the storm sewer from the outfall to a point 1,600 feet upstream in the system. That was followed by the relay of the sanitary sewer along the same path. The sanitary sewer was enlarged to increase the hydraulic capacity of the system. The total cost of these projects was \$1,070,000.

Municipal Stormwater Total Suspended Solids (TSS) Reduction: As required by the Wisconsin Department of Natural Resources, the City of Milwaukee must implement a 40 percent reduction in total suspended solids (TSS) in runoff that enters waters of the state, as compared to no controls, by March 10, 2013. To this end, the stormwater unit of the environmental section has completed modeling of the portion of the City of Milwaukee within the separated sewer area by using the Source Loading and Management Model software.

To aid in its efforts to reach the 40 percent TSS reduction requirements, the City let and awarded a contract in August 2007 for \$815,000 for the installation of 15 stormwater treatment units at different locations throughout the City.

Sanitary Sewer System Inspection: To conform to the Milwaukee Metropolitan Sewerage District's (MMSD) 2010 Facilities Plan goal of reducing infiltration and inflow in sanitary sewer systems, the work began on a sanitary manhole inspection and rehabilitation program in 1998. The City has been divided into five areas to be inspected annually on a rotating schedule.

A contract was let in 2007 for the repair of 1,472 sanitary sewer manholes at a cost of \$1.3 million. The rehabilitation consists of replacing lids, installing chimney seals and repairing defective brick work in the manholes. This needed repair work will help reduce infiltration and inflow and provide us with a more accurate assessment of our existing facilities.

In 2007, a contract was awarded worth more than \$200,000 to inspect the condition of approximately 4,500 sanitary manholes. Based upon the findings of this condition report, a repair contract will be let in 2008 to undertake manhole repairs.

Sanitary Lift Station Rehabilitation: In 2007, the City awarded a sanitary lift station rehabilitation contract in excess of \$227,000 for the City's Bradford Beach facility. The scope of work on this project involved replacing and installing submersible pumps, discharge

piping, valves, transmitter and guide rail system, sealing the wet well, and securing the back-up fuel source for the site. This project also required the installation of a fully operational control cabinet.

Supervisory Control and Data Acquisition System:

A Supervisory Control and Data Acquisition (SCADA) system that provides remote monitoring and control of the City's five lift stations, 83 sanitary bypass pumps and 15 rain gauges is now managed and updated by City staff. The SCADA system allows staff to remotely control the lift stations and bypass pumps if necessary. In addition, it provides real-time information on the operational status of each lift station and bypass pump. Rainfall information is also collected in real time and is provided to MMSD for their use.

Traffic and Street Lighting Projects

Summerfest Shuttle Bus Advanced Parking

Guidance System: During 2007, work continued on the Summerfest Shuttle Bus Advanced Parking Guidance System. This system will provide information to drivers headed to Summerfest to identify available parking in garages located near the shuttle route in the downtown area. It is anticipated that this initial deployment will spur the development of a more comprehensive downtown parking management system. In 2007, the second phase of this project was approved to expand the Advanced Parking System in downtown to parking garages that serve the Bradley Center, Midwest Airlines Convention Center and other parking garages near the Summerfest Shuttle Bus route and Downtown Trolley route. Design engineering for this project began in 2007.

Yield Lines: In the summer and fall of 2007, Yield Lines were installed on the pavement with corresponding signs on the side of the roadway at the unsignalized mid-block Riverwalk crossings on East/West Wisconsin Avenue, East/West Wells Street and East/West State Street and also on North 12th Street north of West Kilbourn Avenue. These improvements are intended to increase the awareness of these pedestrian crossings to improve motorist compliance with current traffic laws and promote safety for pedestrians using the crossings.

Fire Vehicle Traffic Signal Preemption Devices: The City continued its program of installing fire vehicle traffic signal preemption devices on primary fire response routes. As the fire vehicles approach, a continuous green signal indication is displayed on the emergency route to clear the vehicular traffic at signalized intersections and give the approaching emergency vehicles unobstructed travel through the intersection. This program improves

response times for these emergency vehicles while improving safety for emergency vehicles as well as pedestrian and vehicular traffic at affected intersections. In 2007, the signal preemption devices were made operational at 51 locations under this program for a total of 226 intersections.

Engine Compression Braking: The City is continuing the installation of the Engine Compression Braking signs on highways leading into the City to advise truckers of the ordinance prohibiting engine compression braking on any street within the City of Milwaukee. We anticipate completion of the citywide installation of these signs in the fall 2008.

City's Master Street Lighting Control System: In 2007, work continued on the replacement of the City's Master Street Lighting Control System. An operational prototype has been developed and is now in service. The reliability of the current system, which was developed using World War II-era technology to turn the street lights on and off, is declining due to its age. Technological advancements will not only provide more reliable activation of street lights, but will also provide monitoring capabilities of system performance and assist in more efficient repair and maintenance of street lighting facilities.

Street and Alley Maintenance Projects

The DPW maintains 1,450 miles of streets in the City of Milwaukee. Depending upon the condition of the roadway, the pavement may be patched, resurfaced or reconstructed. A computerized program is used to prioritize streets and alleys that need more than routine maintenance. From this study, engineering staff generates a list of streets and alleys needing to be paved. When a paving project has been approved by the Common Council, both City and private utilities investigate the condition of their facilities and, if warranted, these facilities are repaired or replaced in advance of the paving project. If utility work is necessary, the paving is coordinated with this work to minimize the impact to the neighborhood and to the driving public. Once all utilities have completed their upgrades or new installations, the street is paved.

Notable Street Reconstruction Projects Completed:

- West Bluemound Road – North Glenview Avenue to North 66th Street
- West Edgerton Avenue – South 13th Street to South 20th Street
- South Layton Boulevard at West National Avenue
- West North Avenue – West Fond du Lac Avenue to North 24th Street

- West Villard Avenue – North Teutonia Avenue to North Green Bay Avenue
- South 6th Street from West Grange Avenue south to a point
- North 20th Street – West Highland Avenue to West North Avenue
- South 35th Street – West Morgan Avenue to West Lakefield Drive
- North 76th Street – West Florist Avenue to West Clinton Avenue

Notable Bridge Projects:

- West Bradley Road Bridge over Little Menomonee River (completed)
- State Street Bridge over Milwaukee River (completed)
- Kilbourn Avenue Bridge over Milwaukee River (ongoing)
- North Teutonia Avenue Bridge over Union Pacific Railroad, just south of West Mill Road (ongoing)
- South 29th Street between West Montana Street and West Cleveland Avenue (ongoing)
- South 29th Street Bridge over the Kinnickinnic River (ongoing)

Service Improvements for 2007

Construction Management. Infrastructure Services Division administered all construction facets of paving, sewer, water and grading projects, including construction inspection, materials inspection, contractor payments and as-built plans. These services were performed for 36 sewers, 17 water main and 23 paving construction contracts let by DPW.

Street and Bridge Maintenance

Roadway Maintenance. Various preventative maintenance techniques were used to preserve the existing pavement and extend the useful service life of the roadway. The Slurry Seal method of seal coating asphalt pavements effectively seals the surface and has received favorable acceptance by residents over previous methods. A limited asphalt surfacing was completed on eight major street locations using a Superpave asphalt, which eliminates most of the rutting and shoving typically seen at intersections and in high-traffic areas. Requests for street patching repairs increased over 15 percent from the previous year. Approximately 10,560 tons of asphalt was placed on City streets for repair activities. In addition, two Roadpatchers vehicles were utilized to repair potholes by performing a multi-step operation by one person.

Sidewalk Maintenance. A new procedure to eliminate vertical offsets along sidewalks was implemented in 2007 in the central downtown area utilizing a horizontal cut

concrete saw. This self-contained sawing technique leaves a cleaner surface and is particularly effective over surface grinding.

Bridge Maintenance. In 2007, pedestrian access was improved to the Menomonee Valley by the rehabilitation and reopening of the stairway on the 35th Street Viaduct leading down to West Canal Street. The re-decking of the South 29th Street Bridge over the Kinnickinnic River commenced in 2007 and provides access for the adjacent hospital and carries a critical fiber optic packet.

New traffic gates on the east side of the St. Paul Avenue Vertical Lift Bridge were installed to complete the conversion of this bridge to two-way traffic.

Bridge Operations. Providing a vital link to river traffic, operators conducted 13,163 bridge openings in 2007 for commercial and recreational traffic on a 24-hour basis.

Bridge and Structure Inspection. Field inspections on 83, City-maintained bridges were completed in accordance with the State of Wisconsin Structure Inspection Manual and National Bridge Inspection Standards. Inspection reports were entered into the Highway Structures Inventory System database and copies were submitted to Milwaukee County and WisDOT.

WisDOT performed a Level 2 Structure Inspection Quality Assurance review of the City of Milwaukee's bridge inspection program and reported the City was in substantial compliance with National Bridge Inspection Standards as well as Wisconsin's laws, rules and policies. Biannual inspections of the City-owned parking structures were completed in 2007 and resulted in recommendations for both short- and long-term repair needs.

Repair work was completed in 2007 on the MacArthur Square Parking Structure and consisted of painting the walls and columns; lane striping; traffic deck recoating of worn floor areas; expansion joint replacing; and repairing of concrete to the columns and walls of the westerly half of the middle level.

Traffic and Street Lighting

Traffic Signal Services. Of the total 725 controlled intersections, the last electrical mechanical traffic controller was replaced in 2007 with a solid-state controller. New signal intersection controls were installed at 6750 West Industrial Road to facilitate development expansion in the area and at the new 16th Street Viaduct access into the Potawatomi Bingo Casino parking structure, which features camera detection for left turn actuation.

Street Lighting Services. Over 72,000 street lights and 12,000 alley lights are maintained to ensure City neighborhoods and roadways are well lit. In 2007, approximately 3,150 underground troubles were reported and repaired, 400 light pole knock downs were replaced or repaired, 5,000 street lighting lamps were replaced in grouping or scattered locations and 2,400 alley lights were replaced.

The downtown holiday lighting circuitry was a high-profile project in 2007. The Milwaukee Downtown BID #21 purchased new decorations this year and their organization was excited about seeing the final presentation. New wiring and outlet hardware along with two distribution cabinets were installed on West Wisconsin Avenue between North 4th Street and North 10th Street to meet the light-up ceremony deadline.

In November, the City experienced extremely high winds and unfortunately a few steel harp poles fell in the downtown area causing some property damage. Emergency crews responded and replaced all the steel poles in the Cathedral Square area in a very short time. In addition, all the poles on the Wisconsin Avenue and North Avenue Viaducts were removed and replacement poles installed as emergency remedial action. In addition, other installations were inspected and if necessary replaced to provide a continued safe environment.

Field Operations Section

The Field Operations Section operates, maintains and repairs the many infrastructure facilities located in the public way and river system. Responsibilities of the Field Operations Section are wide ranging and include:

- Maintenance of the City's streets, alleys and sidewalks.
- Design, construction and inspection of street, alley, sidewalk and bridge improvement projects.
- Construction and maintenance of all public way lighting, traffic control signals, traffic signage and pavement markings.
- Operation and maintenance of the City's moveable and fixed bridges and viaducts.
- Operation of the Inventory/Stores function for Street Maintenance, Sewer Maintenance, Underground Services, Electrical Services and Water Works including materials, parts, tools and supplies.
- Inspection of permitted utility construction and occupancy in the public way.

Construction Unit

The Construction Unit administers all facets of paving, sewer, water and grading projects. This includes construction inspection, materials administration inspection, labor compliance, contractor payments,

pavement construction, erosion control plan approval and inspection, as-built plans of record, maintenance of a 156,000 record Road Life database and construction management. The Field Engineering Unit performs existing roadway surveys, designs, as-built certificates and construction staking.

Sewer and Water Construction. Construction management services, including field inspection, contract administration and payment processing, were performed for a total of 36 public sewer construction contracts and 17 public water main construction contracts. Inspection was also provided for 0.6 miles of suburban and private water main installation.

Local Paving Construction. Construction management services, including field inspection, contract administration and payment processing were performed for a total of 23 contracts for street and alley construction.

State Paving Construction. The Construction Section also performs administrative duties on Wisconsin Department of Transportation (WisDOT) projects within the City of Milwaukee. These functions include construction management, design, inspection, contractor payment estimates, materials monitoring and reporting, as-built measuring and certificate completion and wage/labor verification. For select projects, survey and design duties were also performed. Six WisDOT paving projects were constructed this year including:

- West Bluemound Road – North Glenview Avenue to North 66th Street
- West Layton Boulevard and West National Avenue intersection
- South 35th Street – West Morgan Avenue to West Lakefield Drive
- West Villard Avenue – North Teutonia Avenue to North Green Bay Avenue
- North 20th Street - West Highland Avenue to West North Avenue

State Bridge Construction. Two bridge projects were commenced and one continuing bridge project was administered by the City of Milwaukee:

- South 29th Street Bridge over the Union Pacific Railroad – 2008 completion
- North Teutonia Avenue Bridge over the Union Pacific Railroad – 2008 completion
- West Kilbourn Bridge over Milwaukee River – Commenced 2006 with 2008 completion
- West Wisconsin Avenue – North 4th Street to North 10th Street

Milwaukee's Crossroads Project Declared One of America's Top Urban Places for 2007

The City of Milwaukee's Crossroads Project was presented with the Rudy Bruner Award for Urban Excellence on Tuesday, September 11th in the Urban Plaza adjacent to the Marsupial Bridge, under the Holton Street Bridge. Ms. Emily Axelrod, Bruner Foundation Director presented Mayor Tom Barrett and those instrumental in the creation of the project with a Silver Award and a \$10,000 cash prize.

At the award ceremony Mayor Tom Barrett announced that Congresswoman Gwen Moore had recently secured \$640,000 from Federal funds for the Marsupial Bridge earmarked for projects of this type that need enhancements. A required local match of \$160,000 for a total of \$800,000 would be spread over a five-year span. However, the amount of federal funds available each year is determined annually by the Federal Highway Administration. The local share will come from TID 22, which has allocated an additional \$1.12 million for enhancements to the Marsupial Bridge. The City of Milwaukee will use the money to create a mid-span connection to Commerce Street and to make improvements to both approaches of the Marsupial Bridge. The \$10,000 from the Bruner Foundation will be used to make improvements to the Urban Plaza. The federal funds and Bruner Foundation award require approval from the Milwaukee's Common Council.

The Crossroads Project began in 1999 as an idea about creating connections in the Brady Street area, which was experiencing revitalization. The project received the award because it "represents an innovative use of often overlooked interstitial spaces adjacent to urban bridges," and "is the product of community involvement and the creative reactivation of a brown field zone adjacent to a viaduct, and has



Mayor Tom Barrett, James Dallman, La Dallman Architects; Yan Nenaydykh, Bloom Consultants; Grace La, La Dallman Architects and Julilly Kohler are holding specially made plaques created for the Rudy Bruner Award for Urban Excellence.

sparked new commercial investment." The project consists of an innovative bus shelter on Brady Street and Van Buren, the Marsupial Bridge and an Urban Plaza adjacent to the pedestrian and bicycle friendly bridge. The Urban Plaza has been used by Wild Space Dance group, for bike-in movies and other community activities.

The unique design for the Marsupial Bridge and Urban Plaza was created by La Dallman Architects, with the structural design provided by Bloom Consultants. The sleek, sweeping design by La Dallman connects two neighborhoods, the Riverwest area (including Kilbourn Park) and Brady Street. One of the main components of the Crossroads Projects is to connect and reconnect existing and emerging neighborhoods to natural amenities, i.e., Downtown and the revitalized Brady Street commercial district.

To date, the project has received local, national, and international recognition, confirming that the project has indeed imaginatively met and exceeded its goals, which include re-use of abandoned, derelict urban space; promote economic development; highlight and encourage use of natural amenities, and existing infrastructure, and to create a "green highway."

The awards include two design awards from Wisconsin's American Institute of Architects, an Engineering Achievement Award from the Wisconsin Section of the American Society of Civil Engineers; a national Design Award from the Association of Collegiate Schools of Architecture, and Mayor's Urban Design Award.

The Crossroads Project was selected for the award by a national panel of experts from nearly 100 entries from across the country. La Dallman Architects spearheaded the project's submission with input from community activists, DPW staff, arts groups, City planners and others.



At the podium, Ms. Emily Axelrod, Bruner Foundation Director, speaks of the reason why the Crossroads Project was selected as one of the Top Urban Space for 2007. Behind her, left to right are Jeff Polenske, City Engineer; Mayor Tom Barrett, Julilly Kohler, Community Activist, Yan Nenaydykh, Bloom Consultants; Alderman Michael D'Amato and James Dallman, La Dallman Architects.

The streetscape and asphalt resurfacing of West Wisconsin Avenue involved the main arterial of an important business area located in the heart of downtown Milwaukee. Asphalt resurfacing was placed in stages to allow two-way traffic and parking throughout construction. In addition to concrete bus pavement pads and curb placement, special joint-patterned walk was installed according to an overall architectural streetscape design.

Intersections were constructed with stamped and colored pavement to complement crosswalks with special jointing patterns. Other streetscape features installed were tree wells, granite planters with wrought iron railing and black iron trash receptacle and bike racks. Specialty kiosks and harp street lighting installation is planned. As expected in an older commercial area, there was hollow walk present. These underground vaults directly under sidewalk may be an extension of existing historic buildings' basements and had to be dealt with in a manner unique to each building before or during construction.

Streets and Bridges Unit

Street Maintenance Area. The Street Maintenance Section administers three types of maintenance contracts: pavement seal coating; crack-filling; and asphalt pavement resurfacing. 2007 marked the ninth season of the Slurry Seal method of seal coating asphalt pavements, which has received favorable public and aldermanic reaction and very few complaints. City streets received 255,426 square yards of Slurry Seal in 2007. Under the crack-filling contract, a contractor crack-filled 399,586 square yards of pavement throughout the City utilizing a rubberized joint seal.

Asphalt resurfacing occurred on the following streets:

- North 60th Street between West Appleton Avenue and West Burleigh Street.
- East Locust Street from North Holton Avenue and North Humboldt Boulevard.
- West Washington Street between South 5th Street and South 6th Street.
- West Mineral Street between South 9th Street.
- South 11th Street, South 9th Street between West National Avenue.
- West Mineral Street, South 6th Street between West Washington Street and West Scott Street.
- West Edgerton Avenue between South Howell Avenue and South 6th Street.
- South 60th Street between West Howard Avenue and West Waterford Street.

A total of 4,220 tons of asphalt was placed with this maintenance effort. Superpave asphalt was utilized on these projects to eliminate most of the rutting and

shoving typically seen at intersections and in high-traffic areas.

Street Maintenance Section field crews placed an additional 10,560 tons of asphalt on City streets. Repair projects included asphalt shims on roadways, asphalt shims on sidewalks, small asphalt patches and pothole repairs. In addition to utilizing asphalt patch trucks, Street Maintenance continues to utilize two Roadpatchers, a one-person vehicle that can patch potholes. This vehicle uses compressed air and blows out any debris from a pothole; then an asphaltic emulsion is sprayed into the pothole, followed by a mixture of emulsion and stone. This repair is finally topped with limestone chips that allow traffic to immediately drive over the repair.

Street Maintenance continues to consolidate services and utilize manpower more efficiently in the new DPW Field Headquarters building at North 35th Street and West Capital Drive. This shared headquarters has made it easier to adjust and share crews as the workload throughout the City fluctuated on a daily basis. Personnel are shared between the DPW departments, working out of the new DPW Field Headquarters building, Street Maintenance, Sewer Maintenance, Building Maintenance, Construction Section and the Water Department. All of these departments have all been able to assist each other as emergencies occurred throughout the City.

Street Maintenance Section has continued to make improvements in tracking customer requests. All service requests phoned into the City of Milwaukee are answered by the Call Center at (414) 286-CITY. Telephone calls for pothole complaints, offsets along sidewalks, guard rail problems and pavement concerns are recorded into a database by the Call Center. Our supervisors access this data via computer a minimum of twice daily. Utilizing the services of the Call Center has improved our record keeping and tracking of complaints, aldermanic service requests and City Attorney claims. Our patching lists now have an associated barcode and this allows us to close out patching request more effectively. The number of calls regarding potholes coming into the City's Call Center went up from 9,339 calls in 2006 to 10,774 calls in 2007. This represented a 15 percent increase in the number of calls.

Street Maintenance crews continued to utilize our sidewalk grinder on offsets along City sidewalks. The sidewalk grinder has been used to correct water flow problems along curb flanges, within alleys and along approaches to our bridges. This year Street Maintenance has tried a new procedure to eliminate offsets along sidewalks. Some sidewalks with offsets were removed utilizing a concrete saw to eliminate the offset. This technique was particularly effective in downtown Milwaukee and was done prior to the Wheelchair Convention.

The Inventory Section for DPW is now part of the Street and Bridge Unit. The section orders, stocks, distributes and tracks all inventory materials for Street Maintenance, Bridge Maintenance, Sewer Maintenance, Building Maintenance, Electrical Services, Construction Section and the Water Department.

Bridge Maintenance Area. This section is responsible for over 220 structures maintained by the City of Milwaukee, including routine daily and seasonal maintenance and response to bridge emergencies 24 hours a day, 7 days a week. These structures span navigable waterways, the extended watershed and highway or railroad grade separations. Most critically, the City operates 21 movable bridges on a year round basis.

The Bridge Maintenance crews are responsible for regular and preventative maintenance associated with our movable bridges, fixed bridges and viaducts. These duties include repairing or replacing failed expansion joints, removing delaminating concrete, cutting and patching concrete flaws, removing snow from the sidewalk area of our bridges and viaducts, removing graffiti from City-owned structures, removing weeds, grass cutting along bridge approaches, cleaning of drains along our bridges, cleaning up of pedestrian bridges and the cleaning of expansion joints at the ends of our bridges and along the entire length of our viaducts. In 2007, this group modernized their snow clearing operations. They are responsible for snow clearing of the sidewalks along City-owned bridges and viaducts, including any associated stairways. Some equipment was updated and new equipment was added to our fleet. These improvements increased the efficiency of the snow clearing operation and reduced the time needed to clear snow from the 220 City-owned bridges.

In 2007, scheduled bridge maintenance projects included the rehabilitation and reopening of the stairway on the 35th Street Viaduct leading down to Canal Street; removal of the stairway on the 16th Street Viaduct leading down to Bruce Street; and repair of the expansion joint at southeast corner of the 27th Street Viaduct. Another major project was the re-decking of the South 29th Street Bridge over the Kinnickinnic River. This bridge carries daily hospital traffic and supports a critical fiber optic packet. Bridge electricians rewired several bridges starting with the Plankinton Bascule Bridge, which included centerlock and platform wiring. They also eliminated trouble spots in existing wiring design for the traffic gates on the Wells Street Vertical Lift Bridge. Bridge electricians installed traffic gates on the east side of the St. Paul Avenue Vertical Lift Bridge to complete the conversion of this bridge to two-way traffic. Crews also repaired and rehabilitated various structural elements of our movable and fixed bridges. Scour components of various bridges were rebuilt and

refortified.

Bridge maintenance crews performed work for other DPW divisions and other City agencies. Repair work and painting were performed at the Linnwood and Howard Avenue Purification Plants. Repair work was performed on Police Department buildings, Fire Department buildings, City Hall, DPW parking structures and Health Department buildings. Bridge painters also respond to complaints of graffiti and work in conjunction with the Department of Neighborhood Services. DPW assigns a vehicle and two painters to abate graffiti locations. They respond to complaints called in to the Graffiti Hotline, direct calls from citizens and referrals from aldermen.

Bridge Operations Area. In 2007, operators conducted 13,163 bridge openings for commercial and recreational traffic. Eight of the twenty-one movable bridges can be remotely operated from a hub bridge. We continue to update bridge electrical layouts and circuit designs to current design practices. This increases reliability in the operation of our movable bridges. The bridge operator maintenance crew and bridge electricians have moved into the City facility located at 1540 West Canal Street.

Inspections Area. The Inspection Section handled nearly 11,000 construction permits in 2007. In addition to construction permits, the Inspection Section reviews special event permits such as block parties, walk/runs and parades. Contractors working in the location of special events are notified of the event and directed to complete their work or close up their excavations so as to cause little or no disruption.

Structural Design Unit

The Structural Design Unit designs and prepares contract documents and performs construction administration for a wide variety of projects involving bridges, retaining walls, parking structures, riverwalks and other structures. The unit develops a Capital Improvement Program and performs safety inspection for all City-maintained bridges and City-owned parking structures. It also maintains plans and other records for the City's bridges, parking structures, retaining walls, dock walls, riverwalks and other structures.

Bridge Design and Construction. The rehabilitation of the historic State Street Bascule Bridge over the Milwaukee River was substantially completed and open to traffic in the summer of 2007. The State Street Bridge has been designated a historic structure, is the oldest remaining Milwaukee-style trunnion bascule bridge, and was the first bridge in the City to exhibit

architectural features to enhance the bridge aesthetics. The rehabilitation included repairing the structural, mechanical, electrical, and architectural elements of this historic bridge.

The Kilbourn Avenue Bascule Bridge is also designated an historic structure and construction work started in early 2006 to rehabilitate the structural, mechanical, electrical components of the bridge and restore the aesthetic features that warrant the historical designation. The Kilbourn Bascule Bridge was closed to traffic in the summer of 2007 after the adjacent State Street Bridge was reopened to traffic. Rehabilitation work is expected to be completed in spring of 2009.

A contract for the rehabilitation of the West Bluemound Road Bridge over Honey Creek was let in February and construction started in April. The project consisted of concrete repairs to the super and substructure and replacement of the timber and steel railing with decorative, crash-tested concrete railing. The rehabilitation was completed in fall 2007.

A contract for the rehabilitation of the Teutonia Avenue Bridge over the Union Pacific Railroad was let in May and construction started in August. The project consists of redecking the bridge, painting the superstructure, repairing the concrete substructure, providing new bridge railing, and asphaltic slope paving. The construction will occur in two phases to allow traffic to remain open on the bridge at all times. The rehabilitation is expected to be completed in July 2008.

A contract for the replacement of the South 29th Street Bridge over the Union Pacific Railroad was let in May. The contract documents required the existing deteriorated bridge to be replaced with a single span, cast-in-place rigid frame bridge, increasing the vertical railroad clearance under the bridge. The contractor submitted and was granted approval for a Cost Reduction Incentive that incorporated a single span, precast tee beam bridge with composite cast-in-place topping. This type of hybrid bridge has previously been used in a few states and is the first use of this concept in the State of Wisconsin. Construction work is scheduled to start in February 2008 with completion in July.

Preliminary engineering work continued for the replacement of the Highland Boulevard Bridge over the Canadian Pacific Railway. The new bridge will be a three span precast girder bridge with aesthetic upgrades incorporated in the bridge railing and vertical wall surfaces of the piers, abutments, and retaining walls. Bids for the project are expected in July 2008 with construction to be completed in the fall of 2009.

Preliminary engineering work continued for the replacement of the Humboldt Avenue Bridges over Riverboat Road and the Milwaukee River. The Riverboat Bridge will provide increased vertical clearance under the bridge while maintaining an adjacent ramp for

access to Riverboat Road. The two bridge replacements and associated retaining wall work will be let as one project to minimize traffic disruption to the area. Bids for these bridge projects are expected in August 2008 with construction to be completed in late fall 2009.

Preliminary engineering work continued for the rehabilitation of the North Teutonia Avenue Bridge over Silver Spring Drive. The proposed work includes replacing the bridge slab, replacing the steel railing with crash-tested rails, and incorporation of a single point intersection to reduce the traffic accidents at the site. Bids for this project are expected in May 2008 with construction to be completed in fall 2008.

Final plans, specifications and cost estimated were submitted for the rehabilitation of the North Prospect Avenue Bridge over Oak Leaf Trail. The work will consist of replacing the concrete-filled steel grating with a new concrete deck, painting the structural steel and making repairs to the substructure elements. Bids for this project are expected in March 2008 with construction completed in fall 2008.

Final plans were prepared for the rehabilitation of the South 29th Street Bridge over the Kinnickinnic River. The project consists of replacing the deteriorated bridge deck, painting the superstructure and modifying the railing to provide a code-required 42-inch height. Construction work is being performed by City forces and work is expected to be completed in 2008.

The construction contract for the repair of the steel piling for the Becher Street Bridge over the Kinnickinnic River was completed in 2007. The work consisted of providing a reinforced concrete jacket around the deteriorated steel piling for increased strength and protection from future corrosion.

Bridge rehabilitation reports were prepared, submitted and approved by the Wisconsin Department of Transportation (WisDOT) for the Teutonia Avenue Bridge over Silver Spring Drive, the Hampton Avenue Bridge over Lincoln Creek, and the Lincoln Avenue Viaduct over Union Pacific Railroad. Preliminary plans and a structure survey report were prepared, submitted and approved by WisDOT for the replacement of the Forest Home Avenue Bridge over the Kinnickinnic River. The bridge is designated an historic structure and will be replaced with a bridge matching the original geometrics and aesthetics incorporating lannon stone veneer on the bridge parapets and exterior wall faces.

Bridge Inspection. This unit performed inspection on 83 bridges maintained by the City. The bridge inspection reports were entered into the Highway Structures Inventory System (HSIS) database and copies were submitted to Milwaukee County and WisDOT. The bridge inspections were performed in accordance with the State of Wisconsin Structure

Inspection Manual and National Bridge Inspection Standards. Copies of the reports and photos of the deficiencies were given to City Bridge Maintenance for their use in scheduling and prioritizing repair work.

WisDOT performed a Level 2 Structure Inspection Quality Assurance review of the City of Milwaukee's bridge inspection program and reported the City was in substantial compliance with National Bridge Inspection Standards and Wisconsin's laws, rules and policies.

In an effort to have all bridges inventoried in their database, WisDOT requested municipalities also enter pedestrian bridges in the HSIS. Previously, only vehicular carrying bridges were included. To accomplish this requirement, Structure Inventory Data forms, electronic plans, and bridge elements for 10 City of Milwaukee-owned pedestrian bridges were submitted and entered into the HSIS site.

Parking Structures

This unit completed the biannual inspections of the City-owned parking structures in 2007. The inspections adopt a report format similar to that used for bridge inspections with major and minor elements of the parking structure given a numerical evaluation rating. Recommendations were given both for short- and long-term repair needs accompanied by pictures identifying the deteriorated condition. Using the information gathered from the inspections, recommendations were given to Parking Administration both for short- and long-term repair needs, and the information was used to prepare a Capital Improvement Program for the parking structures.

Final plans and specifications were prepared and a contract was let for repair work on the MacArthur Square Parking Structure. This work consisted of painting the walls and columns, lane striping, traffic deck recoating of worn floor areas; expansion joint replacement, and concrete repairs to the columns and walls of the westerly half of the middle level. This work was completed in November and is a continuation of a multi-year program to provide a safer and brighter appearance for the parking structure.

Miscellaneous Structures. This unit continued to provide engineering review and contract administration for the Department of City Development in connection with the Milwaukee Riverwalk initiative. The unit's responsibility included review and recommendations for approval on all contracts, plans and specifications, construction budgets, change orders, payments, shop drawings and construction field reports for the Riverwalk development. The following Riverwalk projects had activity in 2007:

Preliminary plans and budgets were reviewed for the

Edge Riverwalk located on the west side of the Milwaukee River upstream of the Holton Street Bridge; the Switch House Riverwalk located on the west side of the Milwaukee River upstream of the McKinley Street Bridge; the Brewers Point Apartments Riverwalk located on the west side of the Milwaukee River downstream of the Lakefront Brewery; the Aloft Riverwalk located on the west side of the Milwaukee River between Juneau Avenue and McKinley Street; and the First Place Riverwalk located at 100 West Seeboth Street along the Milwaukee River. Payment requests were reviewed for the River Renaissance Riverwalk at 102 North Water Street on the east side of the Milwaukee River.

Structural analysis was performed for various repair and construction projects, including bridges, hollow walks, public buildings, firehouses and bridges with overload vehicles. The following is a summary of some of those projects:

Plans were reviewed and comments provided for the structural modifications required for a replacement lift elevator to meet ADA requirements at the City Hall main entrance. Structural inspection and recommendations were given for deficiencies noted in the concrete columns of the Milwaukee Fire Department Repair Shop located at 1st Street and Virginia Street. Plans were reviewed and estimates were verified for a proposed bridge over the Menomonee River and a tunnel under the Canadian Pacific Railroad tracks, which would be part of the proposed Menomonee Valley Passage. The bicycle and pedestrian trail would allow users to access the Hank Aaron State Trail from the south side of Milwaukee, near 39th Street and Pierce Street. A report was prepared at the request of Buildings and Fleet Services to evaluate the structural condition of the lower parking level garage slab of the Zeidler Municipal Building. The report contained results of the investigation, repair alternatives, cost estimates, recommendations and proposed staging plan.

Analysis of bridges by this unit for permit overload vehicles continued as the numbers of permit applications and enforcement has increased. In 2007, 410 bridge analyses of overload vehicles were performed. The overload review and analysis process was streamlined by this unit to allow a timely response to the permit desk to avoid trucking delays.

Electrical Services Unit

Electrical Services serves the City of Milwaukee by overseeing the operation, maintenance and installation of facilities and equipment related to street and alley lighting, traffic control signals and street signage. The entire Electrical Services staff has the necessary dedication and professionalism needed to add to the quality of life for the people who live and work in the City of Milwaukee.

Traffic Signal Services. The Traffic Services area operates and maintains 722 controlled intersections in the City of Milwaukee. This unit performed the required traffic signal work to accommodate various construction improvement projects including:

- Streetscape project on North Holton Street (West Reservoir Street to West Center Street).
- Streetscape project on West Greenfield Avenue. (South 16th Street to South 27th Street).
- Completed Phase III and started Phase IV of the Wisconsin Avenue streetscape featuring the countdown pedestrian heads.
- Replaced the last electrical mechanical traffic controller with a solid-state controller. This project began in 1975 and was escalated in 1985. The City has changed a total of 725 controllers. A new dual intersection was installed at 6750 West Industrial Road.
- A new intersection was installed on the 16th Street Viaduct into the Potawatomi Bingo Casino parking structure, which features camera detection for left turn actuation.
- Assisted in the construction of the Miller Park “reversible lane” project.
- Work began on numerous paving projects including South 35th Street (Morgan Avenue to Lakefield Drive), North 20th Street (Highland Avenue to North Avenue), West Edgerton Avenue (South 13th Street to South 20th Street), West Edgerton Avenue (Howell Avenue to 6th Street), West Bluemound Road (North 66th Street to North Glenview Avenue) and 6th Street & Grange Avenue.
- Work continued on the Marquette Interchange project, which included the completion of five new intersections, plus various off and on ramps and adding turn arrows.
- A total of 22 intersections were wired with overhead lines to facilitate paving and other construction projects.
- Installed power connections for 16 cameras and/or repeater sites for the Milwaukee Police Department camera initiative.

Traffic Sign Shop. The Traffic Sign Shop oversees the fabrication, inventory, installation and maintenance of all the traffic, parking and specialty signage in the City as well as the painting maintenance of all traffic centerlines and lane lines and crosswalks. In 2006, the following was accomplished:

- Completed 90 percent of the crosswalk and arrow painting program.
- Currently, completed 490 replacements, or 95 percent, of the school sign replacement program, which started in 2006. Currently, completed 1,225 replacements,

or 95 percent, of the stop sign replacement program, which started in 2006. Printed 400 signs for the Election Commission.

- Installed 1,800+ Hank Aaron bike trail signs for the State Department of Natural Resources.
- Installed approximately 75 banner brackets on Wisconsin Avenue/ Mason Street to the River.
- Installed various temporary or specialty signs for numerous events held in the City requiring approximately 30 percent of the department’s resources.

Machine Shop. The Machine Shop provides support for routine and specialty machining services for the Electrical Services group, including:

- Designed and fabricated a new type of mast arm for West Capitol Drive.
- Acquired new equipment from the Port of Milwaukee for improved efficiencies in the department.
- Repaired numerous pole and bases for the Marquette Interchange project. Fabricated over 20 JR-style mast arm poles for the Traffic Signal Shop.
- In-house repair of the directional boring machines for additional cost savings to the department.
- Built special traffic arms for Potawatomi Bingo Casino parking structure’s ramps and signals.

Street Lighting Services. Street Lighting operates and maintains over 72,000 street lights, 12,000 alley lights and associated facilities to ensure City neighborhoods and roadways are well lit. Personnel responded professionally around the clock to citizen requests, alderperson’s service requests, contractor damages and departmental priorities.

- In 2007, approximately 3,150 underground troubles were reported and repaired; 400 light pole knock downs were replaced or repaired; 5,000 street lighting lamps were replaced in grouping or scattered locations; and 2,400 alley lights were replaced or repaired, as well other needed electrical maintenance for sub-stations, trans closures and damages caused by contractors or other City forces.

This unit performed the required street lighting work to accommodate various major construction improvement projects, including:

- West St. Paul Avenue (Plankinton Avenue to 5th Street), West Clybourn Street (North James Lovell Street to 6th Street), North 11th Street (Wells Street to Wisconsin Avenue), North 11th Street (Wisconsin Avenue to Tory Hill Street), including the abandonment of old North 11th Street, which required the construction and energizing of a new trans closures, new cabling and removal of all fixtures, arms and poles. North 10th Street (Wisconsin Avenue to Tory Hill Street) was also completed and opened on

schedule.

- Amtrak Station project was done in conjunction with the repaving of West St. Paul Avenue (North 5th Street to 8th Street), which also included the opening of the new freeway ramp at 8th Street and St. Paul Avenue. This work was completed in an extremely short span of time because of conflicts with other construction entities that greatly reduced the time allotted to Street Lighting before the imposed deadlines.
- West Wisconsin Avenue Streetscape, extended from 4th Street to 10th Street with an accelerated deadline imposed on the department with very short notice. Electrical Services personnel responded to this challenge and installed new double harps, lanterns and poles along the entire route in the time required without a single problem.
- West Capitol Drive (Fond du Lac Avenue to 60th Street) with new harp poles, hi-level poles, harp fixtures and lanterns. This project also included a new distribution cabinet for outlet circuitry as well as outlet cabling and the installation of outlet hardware on each pole.
- The downtown holiday lighting circuitry was a high-profile project. The Milwaukee Downtown, Bid #21, purchased new decorations this year and their organization was excited about seeing the final presentation. New wiring and outlet hardware, along with two distribution cabinets were installed on Wisconsin Avenue from 4th Street to 10th Street before the important light-up ceremony.
- North 76th Street (Florist Avenue to Clinton Avenue) and South 76th Street (Oklahoma Avenue to Howard Avenue). All pole work and overhead wiring was installed on time for both projects, along with some added pole moves and the rerouting of overhead lines. Also, these two jobs were “State Projects” and additional pressure was added because penalties for delays could have been applied to the contractors. Work was completed within a very tight construction schedule.
- The Greenfield Avenue and Holton Avenue streetscape projects were continually delayed through the course of the construction season. Approval was finally given to begin in August with a projected finish date in November. Various Line Crew, Pole Crews and Boring Machine Crews completed all the work necessary for the contractors to fulfill their contracts, plus assisted with requests for additional work to solve problems not foreseen in the planning process.
- Late in November, the City experienced extremely high winds. Unfortunately, a few steel harp poles fell in the downtown area causing some property damage. With extreme pressure from the local media, citizens

and the elected officials as a backdrop, crews responded by replacing all the steel poles in the Cathedral Square area in a very short time. In addition, all the poles on the Wisconsin Avenue Viaduct, which were also suspect, were removed and 16 replacement poles were installed. Another area where steel poles needed attention was on the North Avenue Viaduct with all 32 poles removed and temporary poles installed as an emergency remedial action. This challenge was accomplished in a short span of time before any additional pole failures occurred plus all steel poles installed in the City were inspected and, if necessary, replaced to ensure a safe environment for the citizens of Milwaukee.

- During fiscal 2007, approximately 67,000 feet of 2.5-inch conduit was installed along with 311,000 feet of multiple cables and an additional 50,000 feet of series cable for various paving and cabling projects.
- Each year the City becomes more high-tech. This year, assistance was provided to DPW Parking for the installation of 103 automated parking meters. These units run off a battery during the day and are charged up at night from the street lighting circuitry. Each unit required excavation from a City light pole for the installation of the conduit and wiring for these charging circuits. Crews met the goals of parking’s extremely tight construction schedule and were proud to assist with this vanguard project.



Zeidler Municipal Building
841 North Broadway, Room 409
(414) 286-2830

www.water.mpw.net
watwebcs@milwaukee.gov

Carrie M. Lewis, M.Sc., *Superintendent*
Laura Daniels, *Administration and Projects Manager*

Milwaukee Water Works

Safe, Abundant Drinking Water.

The Milwaukee Water Works, a self-financing enterprise owned by the City of Milwaukee, provided 35 billion gallons of pure drinking water to Milwaukee and 15 communities in southeastern Wisconsin in 2007.

The utility disinfects Lake Michigan water with ozone and completes treatment with coagulation, settling and filtration. The Milwaukee Water Works is regulated by the Public Service Commission of Wisconsin (PSC), the U.S. Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (DNR).

Nationally Known for Pure Drinking Water

Milwaukee's drinking water is recognized nationally for its high quality. The Milwaukee Water Works invested \$210 million in treatment and distribution systems in the past decade to ensure this high quality.

The Milwaukee Water Works performs continuous monitoring of the treatment process and water quality characteristics, collecting thousands of test measurements daily, most of them exceeding what is required. The utility continually meets EPA requirements to test for 90 regulated contaminants and voluntarily tests for over 500 non-regulated contaminants. Most of the contaminants are not detected. Milwaukee was one of the first utilities in the United States to test for pharmaceuticals and personal care products in its source water and treated water.

In January, the EPA notified Milwaukee that its water quality monitoring system was in full compliance five years ahead of time with new regulations to control disinfection byproducts. The Milwaukee Water Works was able to accomplish this as a result of its rigorous water quality monitoring.

The utility maintains interagency relationships with city, state and federal health, and environmental agencies to monitor public health and drinking water quality.

The Value of a Well-run Water Utility

Milwaukee water is a great value. Five gallons of Milwaukee's ozone-purified water cost 1 cent. With an average daily use per person of 50 gallons, the daily cost per person is about 10 cents.

The Milwaukee Water Works reduces the tax rate in the City of Milwaukee. In 2007, the utility made a \$7.8 million payment to offset the City tax levy, reducing the tax rate by \$0.26 per thousand dollars of assessed valuation. The utility pays other City departments for services it uses and for the payment of employee benefits.

While public health is the primary consideration in the delivery of Milwaukee water, the Milwaukee Water Works systems are designed to also provide enough water to suppress a major fire anywhere in the service area.

Utility Organization

Water Treatments Plants. The Milwaukee Water Works disinfects Lake Michigan water at two treatment plants. The Linnwood Treatment Plant has a rated capacity of 275 million gallons per day (MGD) and the Howard Avenue Water Treatment Plant has a rated capacity of 105 MGD. Average pumpage by the utility in 2007 was 115 MGD.

Water Quality Section. Chemists, microbiologists and laboratory technicians conduct continuous process control monitoring and validate the measurements in the laboratories. The Water Quality Section is proactive in expanding its monitoring of unregulated contaminants and its screening program to include Endocrine Disrupting Compounds, brominated flame retardants and pharmaceuticals.

Distribution. Field crews focus on scheduled preventive maintenance and emergency repairs to the underground water piping system throughout

Milwaukee and the utility's retail customer suburbs. Distribution crews inspect and maintain approximately 20,000 fire hydrants.

Water Engineering. Water engineers provide an internal resource, responsive to applied research needs and coordinating the Capital Improvements Program (CIP). The CIP projects are planned to increase efficiency and maintain the reliability of the entire Milwaukee Water Works system.

Business Section. Employees working from the Zeidler Municipal Building provide accounting, customer service, billing and collections, and marketing and public outreach.

Meter Services personnel work to ensure that water meters are operating properly and accurately represent water usage. Services include meter reading — both automated and manual — meter testing and repair, and providing emergency water supplies to industrial and commercial customers.

Upgrades to the Milwaukee Water Works Customer Information System provided enhanced flexibility and accounting integrity for fees billed on behalf of the City on the Municipal Services Bill. In 2007, the Milwaukee Water Works began an online payment option using MasterCard or eCheck at its Web site, www.water.mpw.net. Customers gained the option of contacting Milwaukee Water Works through an email address, watwebcs@milwaukee.gov, and may view account balances, make address changes and monitor water use using the Web site.

A Leader in Using Water Wisely

The Milwaukee Water Works, an EPA WaterSense partner, has devised and implemented strategic initiatives in supply-side conservation to optimize water use. The *Using Water Wisely* program, combining operational improvements and public education, has gradually increased savings of treated water to a current estimate of 500 million gallons each year.

Milwaukee has an ample supply of water and treatment capacity. The entire water service area is within the Lake Michigan watershed. As a steward of the resource, the Milwaukee Water Works has focused on supply-side conservation, making improvements to save millions of gallons of water that would take customers decades to equal. Water use in Milwaukee decreased from 50 billion gallons pumped in 1970 to 35 billion gallons pumped in 2007 due to the loss of wet industry and changes in residential use patterns. This is yet another reason to identify and initiate supply-side conservation measures.

The Milwaukee Water Works saved millions of gallons of water and prevented injury and property damage with

a multi-year public education campaign to reduce illegally opened fire hydrants. Illegal openings of hydrants wasted an estimated 447 million gallons of treated water in 2006, when 745 illegally opened hydrants were reported during hot weather periods between May and August. A campaign with the Fire and Police Departments and Milwaukee Public Schools, and the installation of hydrant locks, had the desired effect. In 2007, there were 165 illegal openings, wasting an estimated 99 million gallons of water. This was 348 million gallons fewer than in 2006. The water savings continue. The American Water Works Association (AWWA) Wisconsin section presented the Milwaukee Water Works with a 2007 Utility Special Achievement Award for the successful program.

The water treatment plants utilize 40 dual media filters, which require approximately 1,500 backwashes per year. A combination of extending filter run times and optimizing the length of the backwash cycle was piloted in 2004 and implemented in 2005 after it was demonstrated there was no adverse impact to water quality from these process changes. Since 2005, the techniques have saved over 580 million gallons of treated water—165 million gallons each year.

The Milwaukee Water Works provides conservation information to customers. The public education program advises them to watch for and fix leaks and to protect pipes and meters from freezing. Customers can track and compare quarterly water use by accessing their account online at www.water.mpw.net. Each year, staff counsels 2,000 customers about high water use and visits 3,000 homes to identify plumbing leaks. Monthly meter reads of the 1,000 largest customers compare current to past use and any changes in seasonal or monthly patterns are reported for corrective action. Meters are tested for accuracy on a regular basis.

The Milwaukee Water Works also received a 2007 Utility Special Achievement Award from the AWWA Wisconsin section for its campaign, "Only Tap Water Delivers." Launched during the utility's 135th anniversary, the campaign promoted public awareness of the value of a safe and reliable drinking water supply and encouraged community stewardship for maintaining water infrastructure for future generations.

In fall 2007, the Milwaukee Water Works began a public relations program to encourage consumers to "*Drink Locally — Fill at the Tap and Enjoy.*" The campaign recognized the convenience of bottled water, but urged consumers to refill at the tap, especially since they have already paid to have the water from their taps treated and pumped.

Sustainability and Energy Efficiency

The Milwaukee Water Works is working to implement sustainable practices and conserve energy throughout its operations.

To help protect the Lake Michigan resource, the Milwaukee Water Works has adjusted its water main and hydrant flushing activities away from rainy periods to dry days to assist the Milwaukee Metropolitan Sewerage District in reducing overflows into the lake.

The Milwaukee Water Works is taking steps to reduce its electrical energy use. To maximize energy savings with the lighting at the two treatment plants and pumping stations, plant electricians have ongoing projects:

- 85-watt compact fluorescents bulbs replaced 500-watt incandescent bulbs.
- Astronomical timers, which adjust settings as daylight periods change, were installed to ensure just the right number of lights are on for the safety of personnel in the skylit filter gallery at night. The same timers were installed on exterior lights of the plant.
- “Walk-through” lighting throughout the plant using timers, switches and motion sensors was installed.

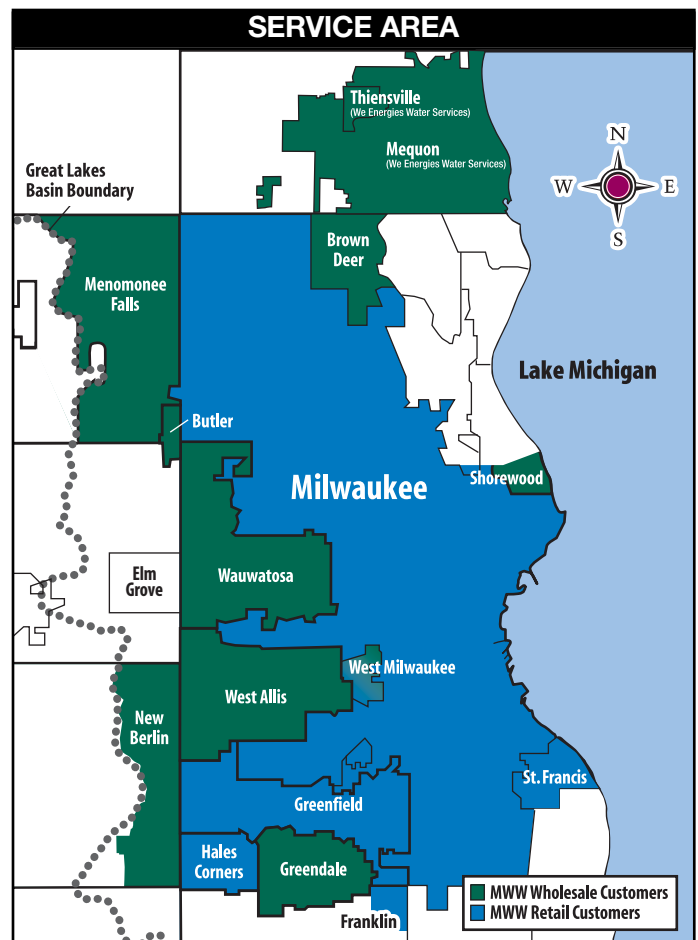
Emphasis is placed on using the most energy efficient pumps for the situation to keep water flow consistent during peak and lower demand times. For example, electrical energy use at a booster station was lowered by installing a variable frequency drive on a station pump. Mechanics developed large motor preventive maintenance schedules to make sure the large motors are running properly and as efficiently as possible.

A new HVAC system at the Meter Repair Shop replaced pneumatic controls with energy efficient digital controls. Ongoing HVAC studies at major facilities will look for energy savings. Roofing projects are designed to include energy payback. All ozone generators have been inspected and are maintained for efficient operations. Generators were modified to turn off the ozone monitors when the generators are on standby, saving energy and chemical use.

Milwaukee Water Works vehicles and equipment that are fueled by diesel have been phasing in increasing concentrations of biodiesel, from 2 percent to 10 percent, with a goal of 20 percent in spring 2008. Hybrid and E85/gasoline formats are purchased for passenger vehicles.

In addition to paper, plastic, glass and aluminum, recycled materials include batteries, fluorescent lighting, concrete and asphalt removed from construction and maintenance sites.

The Milwaukee Water Works was a partner in production of the Simple Solutions to Water Pollution brochure created by Milwaukee WaterPartners, a consortium of regional environmental groups. The utility



Communities receiving retail water service — water, billing services and maintenance of their distribution systems:

Franklin (a portion)
Greenfield
Hales Corners
St. Francis
West Milwaukee (provides its own maintenance)

Wholesale customers receiving only water:

Brown Deer
Butler
Greendale
Menomonee Falls
We Energies Water Services for part of Mequon and Thiensville
Milwaukee County Grounds facilities
New Berlin
Shorewood
Wauwatosa
West Allis

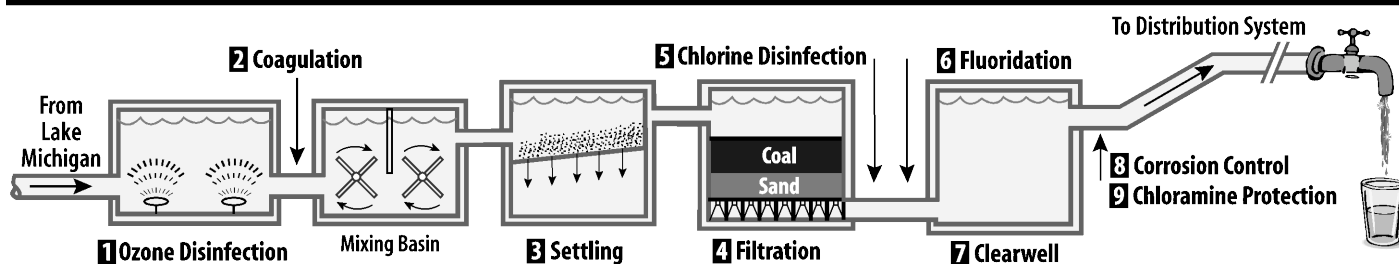
also participated in Lake Michigan beach cleanup programs with Milwaukee Public Schools.

The Milwaukee Water Works takes pride in providing high-quality water to support the regional economy and quality of life in the Milwaukee area. These were some of our largest commercial customers in 2007:

- MillerCoors Brewing
- We Energies
- Milwaukee Public Schools
- D.R. Diedrich & Co. Ltd. (leather products)
- Cargill Meat Solutions Corp.
- University of Wisconsin-Milwaukee
- Marquette University
- Aurora St. Luke's Medical and Aurora Sinai Medical Centers
- Falk Corp.
- U.S. Dept. of Veterans Affairs
- Campbell Soup Supply Co., LLC
- GE Medical Systems
- Master Lock
- Coca Cola Enterprises
- Rockwell Automation
- Joy Global Inc.
- Columbia St. Mary's
- Wisconsin Paperboard Corp.
- The Marcus Corp.
- Fontarôme Chemical, Inc.
- Hydrite Chemical Co.
- Milwaukee Forge
- Wheaton Franciscan Health Care/St. Joseph's Hospital

- Stainless Foundry & Engineering, Inc.
- Henri's Food Products Co. Inc.
- Pereles Bros. Inc. (plastics)
- Masterson Co. (food products and packaging)
- Hercules Inc. (chemicals, plastics)
- Molecular Biology Resources, Inc. (enzymes; non-diagnostic biological products)
- St. Francis Hospital
- Klement Sausage Co.
- Ball Metal Beverage Container Corp.

Milwaukee Water Works Drinking Water Treatment Process



1. Ozone Disinfection — Ozone gas is bubbled through the incoming lake water. Ozone destroys disease-causing microorganisms including *Giardia* and *Cryptosporidium*, controls taste and odor, and reduces chlorinated disinfection byproducts.

2. Coagulation — Very fine particles in the water adhere together to form larger particles as the coagulant alum is mixed into the water. Large particles are more effectively removed during the settling and filtering processes.

3. Settling — Settling is the process in which solid particles settle out and are removed from the water.

4. Filtration — The water is slowly filtered through 24" of biologically active anthracite coal and 12" of crushed sand to remove very small particles.

5. Chlorine Disinfection — After filters, chlorine is added as a secondary disinfectant. This provides extra protection from potentially harmful microorganisms.

6. Fluoridation — Fluoride, when administered at low levels, is proven to help prevent tooth decay.

7. Clearwell — Treated water is stored in deep underground tanks and pumped as needed through the distribution system.

8. Corrosion Control — A phosphorous compound is added to help control corrosion of pipes. This helps prevent lead and copper from leaching from plumbing into the water.

9. Chloramine Protection — Ammonia changes the chlorine to chloramine, a disinfectant that maintains bacteriological protection in the distribution system.

2007 Statistics

General Information about Milwaukee

Altitude (City datum).....	581.2 feet
City area.....	96.1 square miles
Geographic center	N. 42nd St. and W. North Ave.
Shoreline of Lake Michigan in City	10.2 miles
Incorporated by Wisconsin Charter.....	January 31, 1846

General Information about Milwaukee's Infrastructure

Alleys, total	415 miles
Freeways	40.1 miles
Paved City streets	1,424 miles
Unpaved City streets	14 miles
Total City streets	1,438 miles
Miles of lighted streets	1,289.73 miles
City maintained bridges.....	204
Movable bridges.....	21
Total bridge openings.....	13,163
Total sewer mileage in operation (sanitary, storm and combined)	2,442
Streets with interim lighting.....	81.96 miles
Unlit streets.....	52.31 miles
Street lighting units	67,447
Alley lighting units	8,925
Traffic control signals	737 intersections
Traffic control signs.....	109,213
Underground conduit	556.9 miles
Bus stops, signage maintained	4,268

Milwaukee Water Works

Howard Avenue treatment plant rated capacity	105 million gallons per day (MGD)
Linnwood treatment plant rated capacity	275 MGD
Average daily pumpage 2007	115 MGD
Total gallons sold 2006...35.5 billion gallons	
Total length of all water mains in service	1,966 miles
# of meters in service	161,746
# of fire hydrants in service	19,632
Population served.....	858,920
Area served.....	195 square miles
Average daily use per person.....	50 gallons
Cost of drinking water:.....	5.8 for one cent or 100 cubic feet (748 gallons) for \$1.27

MWW payment to city for taxes and services used: \$7,766,750

Retail customers: (water, billing service, maintenance) Franklin, Greenfield, Hales Corners, St. Francis, West Milwaukee (provides its own maintenance)

Wholesale customers: (water only): Brown Deer, Butler, Greendale, Menomonee Falls, We Energies Water Services for part of Mequon, Thiensville, Milwaukee County Grounds facilities, New Berlin, Shorewood, Wauwatosa, West Allis.

Sanitation

Residential waste collected.....	182,201 tons
Other solid waste collected	86,171 tons
Recyclables collected	24,017 tons
Compostables collected	29,900 tons
Snowfall (January – December).....	77.8 inches
General snow plowings	7
Ice control operations.....	55
Service requests	105,223

Forestry

Trees on city streets	200,000
Shade trees planted	3,708
Trees pruned	48,515
Trees removed (all causes).....	3,453
Stumps removed.....	3,517
Boulevard medians and green spaces maintained	476 acres
Flowers produced, annuals	320,075
Flowers planted, annuals	143,560
Flowers planted, perennials	2,706
Flowers planted, bulbs	18,000
Shrubs planted	728
Landscaped boulevard medians	121.8 miles
Green spaces maintained	59
Totlots maintained	57
City properties maintained	20
Service requests	21,297

Infrastructure Services – Sewer Design and Maintenance

Sewers examined	92 miles
Sewers cleaned	331 miles
New sewers.....	4.32 miles
Replacement sewers	11.25 miles
Sewer lining.....	5.11 miles
Service calls answered	6,942

Fleet Services

Repair orders.....	31,110
Preventive maintenance inspections performed	7,874
Tires mounted	3,380
Field service calls, tires	3,354
Field service calls, other.....	9,220
Stockroom activity	4,559,436
Vehicles serviced	
Automobiles	102
Vans	161
Pickups.....	291
Police units	755
Parking enforcement	48
Packers, rear load	132
Packers, front load and roll-off	21
Packers, recycling.....	49
Tractors	63
Street sweepers	21
Sewer cleaners, flushers, etc	19
Construction equipment	481
Trucks, all other.....	378
Compressors	82
Vehicle Total	2,604
Non-automotive equipment.....	1,538
Total Serviced.....	4,142

Street and Bridge Maintenance

Bridges, inspected	83
Bridges, number of openings	13,163
Pavement seal coating (square yards)	255,426
Asphalt surface by contract (tons).....	4,220
Asphalt patching (tons).....	10,560
Crack filling (square yards)	399,586



Zeidler Municipal Building, 841 North Broadway, Room 501 • [414] 286-3300 • TDD [414] 286-2025